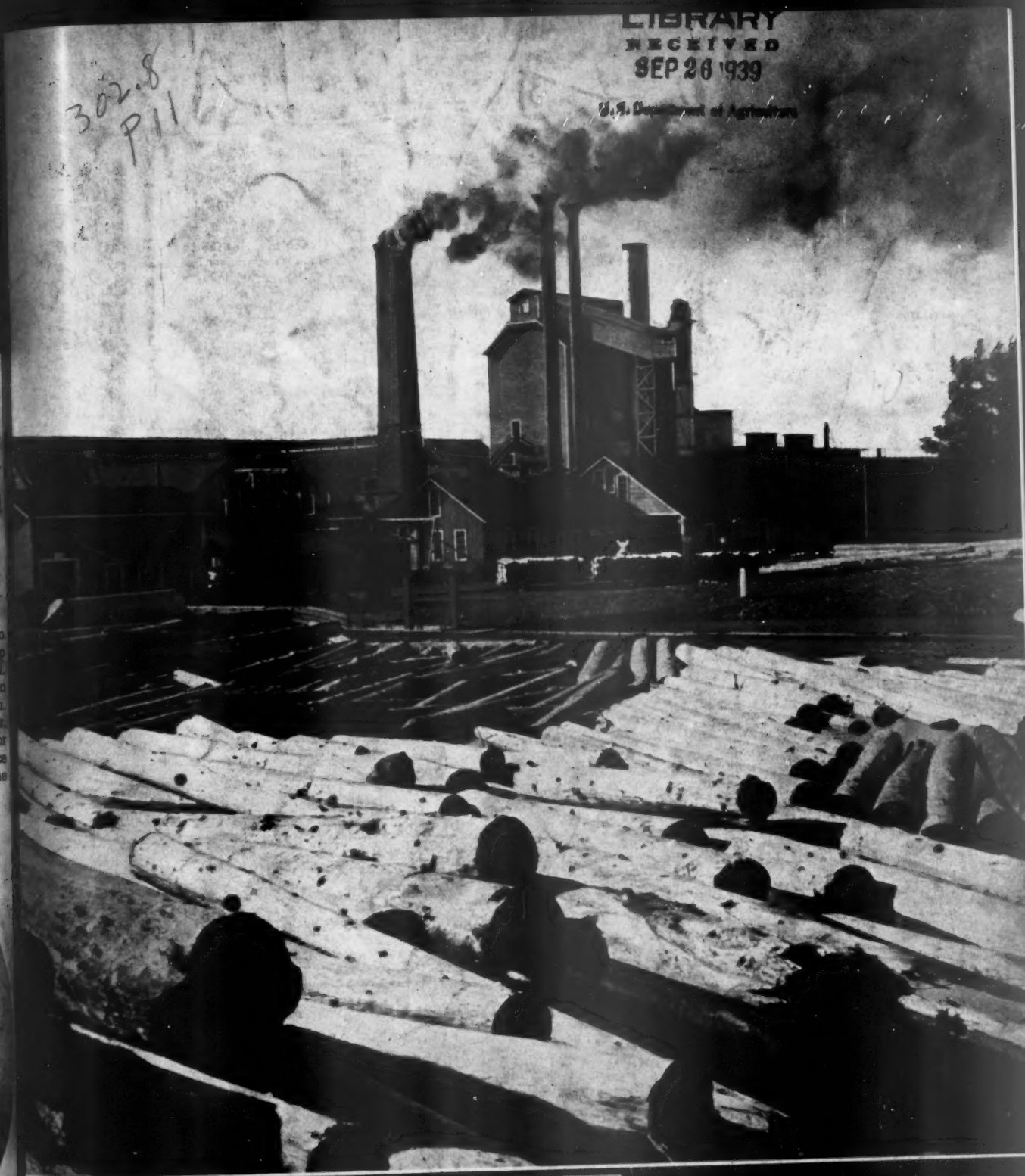

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War Reverses Pulp Situation

American converting mills fortunate that excess capacity existed in American pulp industry at time war began—Probable elimination of European pulp from U. S. market creates opportunity for converting mills and American pulp producers to work more closely together in cementing a permanent relationship for their mutual benefit—Sweden, Finland, Norway and Germany supplied 15.86% of all the wood pulp consumed in the United States in 1938

THE beginning of the war in Europe on September 2nd suddenly completed the reversal of the downward trend in the United States pulp market which began in the late Fall of 1937. The change from a buyer's to a seller's market appeared to develop almost overnight but the change actually set in during the latter part of July when the latest period of tension in Europe began to develop. Prices were on bottom levels for a British pound worth $4.68, and, barring further depreciation of the pound along with the Swedish kronor and the Finnish finmark, the American industry expected slow recovery as the prices in effect in the American market were unprofitable not alone for American producers but for those of Sweden, Finland, Norway and Canada.

With the growth of tension in Europe and the feeling that war might come early in September, American converting mills who had shown little or no fear of the stability of their foreign pulp supply during the Munich crisis of last year, began during the closing weeks of July to show interest in American sources of supply for their 1940 wood pulp requirements. Pacific Coast and southern mills producing pulp for the market received many inquiries asking how much tonnage they could supply during the remainder of 1939 and throughout 1940. When German troops crossed the Polish border these inquiries turned immediately into definite orders.

Undoubtedly many of the converting paper mills are now buying pulp in excess of their consumption for fear of a shortage later on. Stocks of foreign pulp in warehouses at the mills, along the Atlantic Coast and in the Great Lakes region are said to be large, but they will not last very long if shipments from Finland and Sweden are largely stopped, as they appear to be by reason of the British blockade of the Baltic and from Norway by the uncertainties of shipping across the North Sea. If the dangers of shipping through mine and submarine infested waters keep the Scandinavian countries almost entirely out of the United States pulp market the converting mills will be wholly dependent upon domestic and Canadian sources of wood pulp. If the war ends before the close of 1939 the pulp market will suffer a temporary slump due to excessive buying during the final four months of the year, but if the war is a long one the American wood pulp industry on the Pacific Coast and in the southern states will be greatly strengthened.

Europe Supplied 16% of Pulp Consumed in U. S. in 1938

● In 1938 the United States consumed 7,402,546 short tons of wood pulp (sulphites, sulphates, groundwood and soda), and of this total consumption 23.1 per cent or 1,710,514 short tons valued at $72,777,808 were imported from Canada and from the several pulp exporting countries of Europe.

Of the imports of 1,710,514 short tons, 68.3 per cent or 1,174,241 short tons valued at $47,866,340 were imported from Sweden, Finland, Norway and Germany. The importance of this tonnage in the economy of our pulp and paper industry is shown by the fact that these imports from Sweden, Fin-

68.3% of 1938 U. S. Pulp Imports From Sweden, Finland, Norway and Germany.

land, Norway and Germany amounted to 15.86 per cent of all the United States consumption of wood pulp in 1938.

Sweden in 1938 supplied us with 46.8 per cent of our total wood pulp imports, with 807,129 short tons valued at $32,501,948.

Finland supplied us in 1938 with 258,779 short tons valued at $10,211,937 or 15 per cent of our total imports by tonnage.

Norway supplied us in 1938 with 4.2 per cent of our total imports with 70,365 short tons valued at $3,771,270.

Germany furnished us in 1938 with 37,968 short tons worth $1,381,185.

Sweden Requires Permit for Pulp Exportation

● Effective September 11th the government of Sweden issued an announcement which was transmitted by cable to the United States by the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce, stating that the exportation of iron ore, iron and steel, lumber, wood pulp, newsprint and other staple products from Sweden has been made subject to permit.

This announcement followed the order on August 28th which stated that the exportation of a specified list of raw materials and other essential articles from Sweden, such as foodstuffs, medical supplies, motorcycles, etc., was made subject to a special permit of the newly established Trade License Board. However in this order of August 28th, lumber and wood pulp were specifically exempted.

Under the present circumstances, with shipping in and out of the Baltic extremely hazardous, Sweden obviously desires to exercise close control over those products which are likely to be considered contraband by Germany or Britain and France. Further, Sweden wants to remain neutral and to do so she must control the exportation of her products. Wood pulp can be considered a munition of war and for that reason its exportation must be controlled.

The effects of the instituting of a permit system governing the exports of wood pulp from Sweden will not be visible for sometime. All we can do is to wait and see how it works out.

The action of the American Scantic Line in cancelling all shipping to and from the Scandinavian countries created the feeling that other lines might follow suit to avoid loss of ships by mines and submarines, or at least to avoid loss of cargo which might be considered contraband. A week ago the Pacific Coast European Conference decided to leave the rates to Sweden open but with the understanding they would be raised from 60 to 100 per cent over the previous rates. This action was predicated, of course, upon the supposition that some shipping would be carried on in and out of the Baltic Sea. Whether this is possible or not cannot be told at present.

Sulphite Prices Unchanged for Balance of the Year

● For shipments during the remainder of the present year the producers of sulphite pulps on the West Coast did not raise their prices above the low level in effect prior to September 2nd, but it is reported that the manufacturers of southern kraft jumped their prices immediately by several dollars per ton. Pulp mills on the Coast are swamped with business for the last four months of the year and with offers of contracts for 1940.

Sulphite prices must rise for next year. Already the cost of hemlock logs has gone from $9 to $12 per thousand board feet on Puget Sound and intercoastal shipping rates will be much higher in 1940 than at present due to increased volume of traffic. While the amount of the increase in prices of sulphite pulps cannot be determined at this time due to uncertainties of the remaining months of the year, the American converting mills can be sure that the advance from the present unprofitably low levels will not be unreasonable but will be commensurate with the increase of costs.

The American wood pulp industry recognizes that a too high price on pulp works to it own disadvantage by preventing their customers, the converting mills, from competing on an even basis with the self-contained pulp and paper mills.

Converting Mills Are Very Fortunate

● The paper mills in the United States depending upon purchases of wood pulp are extremely fortunate because of the excess capacity existing in the American wood pulp industry at the time the war began. A reference to the accompanying table prepared by the United States Pulp Producers Association will give the reader an indication of the excess capacity available to the converting mills.

The American converting mills are fortunate, too, that new pulp mills have been built during the last decade or more on the Pacific Coast and in the South. Were it not for this construction the converters would be faced with elimination through inability to obtain raw material.

As a matter of self-interest the executives of American paper mills ought to seriously consider the following facts. If the full effect of depreciated foreign currencies (without any tariff protection), the higher costs of American labor and dumping practices of foreign pulp producers, were a normal condition these pulp mills on the Pacific Coast and in the South would not be in existence and ready to assist the converters now that their European sources are cut off. Had these conditions been the normal situation the American pulp mills could not have been built. Their construction would have been an impossibility.

● This war is already exercising a far greater influence upon the American pulp and paper industry than did the World War, primarily because our imports of wood pulp are more than two and a hal ftimes larger than they were in 1914. Total wood pulp imports in 1914 were 675,600 short tons as compared with 1,710,514 short tons in 1938. The dependency of the American paper industry upon foreign wood pulp is, therefore, so much greater today that the cutting off or the curtailing of the foreign sources will result in far more serious effects upon the converting mills in the United States.

It naturally follows, then, that with the pulp of Scandinavia unavailable the American converting mills are more dependent today upon the American pulp mills than they were in 1914. This situation presents an opportunity to converting mills and pulp mills alike to work closely together for their mutual benefit. Circumstances are forcing this cooperation at the beginning but it is hoped by the American wood pulp industry that, as the converters and the producers of wood pulp come to know each other better through the close contact the war is forcing upon them, that the relationship will grow into a permanent one which will endure long after peace has returned to Europe.

The pulp industry of the United States has always desired that this close cooperation with the buyers of wood pulp should develop out of their ability to provide at a price

fair to buyer and seller alike uniform quality pulps of the grades needed by the converters, but the fact that there has been a shortage for a number of years of some grades of wood pulp produced in this country and the resultant dependency of the converting group upon foreign supplies, has been one of the powerful deterrents operating against the accomplishment of this seemingly natural relationship.

It is highly unlikely that the domestic pulp mills selling in the market will attempt to take advantage of the current situation by raising prices beyond a reasonable level for, as pointed out above, it is in their direct interest to keep their converting mill customers in a competitive position against those paper mills making their own pulp.

The Available Supply

● From the table showing American pulp production and consumption it will be noted that excess wood pulp producing capacity exists on the basis of the maximum yearly consumption in all grades except unbleached sulphite wood pulp where the deficiency of production on a 350 day operating basis below 1937's maximum consumption amounts to 552,700 short tons. It is in unbleached sulphite where the effect of the shutting off of Scandinavian wood pulp supplies will be felt first.

The unbleached sulphite deficiency is already bringing marginal mills into production in both the United States and Canada. How far these units can go to make up for the shipments normally coming into the United States from Sweden cannot be estimated with accuracy at the present time.

In the case of bleached sulphite (both rayon and paper grades) the United States Pulp Producers Association estimates that we have an excess capacity on a 350 days operating basis of 138,800 short tons over and above the consumption of 1937, which was the maximum yearly consumption of bleached sulphite to date.

Bleached kraft capacity has a margin over the 1938 consumption of 96,300 tons while unbleached kraft capacity exceeds the consumption of 1938 by 662,700 short tons.

The capacity of our groundwood mills seems ample as the 1939 capacity on a 310 days basis is 437,200 tons in excess of 1929 consumption of 1,911,100 short tons and 864,400 short tons in excess of 1938 consumption.

In estimating the available supplies of the several grades of wood pulp produced in the United States it is not accurate to take either the 1937 or 1938 consumption figures for 1939 consumption is higher than last year's and yet below the maximum attained in 1937.

Estimated on a 1939 Basis

● We can, perhaps, obtain a somewhat more accurate estimate of available pulp supplies by employing the data available on the production of paper and paper board in the first half of 1939. The American Paper & Pulp Association's figures on paper and board production in the first half of the current year show a 16.4 per cent increase in tonnage over the first half of 1938. But 1938 was a year of gradually rising production and hence the increase of production in the second half of 1939 over the same period of 1938 is not likely to be as great. There is the possibility, of course, that the war may stimulate some grades of paper, such as newsprint to replace that expected from Scandinavia.

The American Paper & Pulp Association's weekly production ratio for the first six months, showed an average increase of 13.3 per cent in production as a ratio to cacpacity over 1938's first half. But, for the first 35 weeks of 1939, including the week ending September 2nd, the increase over 1938 had dropped to 11.1 per cent. A 10 per cent estimated increase for the entire year over 1938's production will be a conservative one.

On a basis of a 10 per cent increase in 1939 consumption of wood pulp over 1938 we have refigured the table accompanying this article to give the reader another basis for determining the potential available

The United States Wood Pulp Situation

Production, Consumption and Percentage of Production to Capacity in 1938 together with Potential Capacity and Margin of Capacity over Year of Maximum Consumption of Wood Pulp—Data prepared September 2nd, 1939, by the United States Pulp Producers Association.

Short Tons

	Sulphite Pulp Bleached	Sulphite Pulp Unbleached
U. S. 1938 Production	1,000,000	630,000
U. S. 1938% of Operation	65	64
U. S. could have produced 1938	1,538,500	988,800
U. S. 1938 Consumption	1,247,400	1,284,300
U. S. 1939 Capacity, 310 days	1,587,000	951,300
U. S. 1939 Capacity, 350 days	1,791,800	1,074,000
U S. 1937 Consumption*	1,653,000	1,626,700
Margin	+ 138,800	— 552,700

	Sulphate Pulp Bleached	Sulphate Pulp Unbleached
U. S. 1938 Production	325,000	2,145,000
U. S. 1938% of Operation	82	77
U. S. could have produced 1938	394,700	2,782,500
U. S. 1938 Consumption	414,700	2,565,600
U. S. 1939 Capacity, 310 days	452,600	2,859,300
U. S. 1939 Capacity, 350 days	511,000	3,228,300
U. S. 1938 Consumption*	414,700	2,565,600
Margin	+ 96,300	+ 662,700

	Groundwood Pulp
U. S. 1938 Production	1,325,000
U. S. 1938% of Ouperation	62
U. S. could have produced 1938	2,145,200
U. S. 1938 Consumption	1,483,900
U. S. 1939 Capacity, 310 days	2,348,300
U. S. 1929 Consumption*	1,911,100
Margin	+ 437,200

*Maximum yearly consumption to date.

A further comparison of available United States wood pulp supplies has been prepared by PACIFIC PULP & PAPER INDUSTRY on a basis of estimated 1939 consumption, and is described in detail in the text.

Estimating 1939 wood pulp consumption as 10 per cent larger than 1938, the margin in bleached sulphite pulp on a 350 days basis would be 419,664 short tons over consumption this year of 1,372,136 short tons.

On the same basis there would be a deficiency of 338,780 short tons in unbleached sulphite on a basis of 350 days production and 1939 estimated consumption of 1,412,780 short tons.

The margin of capacity over consumption on a 350 days basis for bleached sulphate pulp is 54,860 short tons over estimated consumption of 456,140 short tons.

Consumption of unbleached sulphate in the U. S. this year is estimated at 2,822,147 short tons and productive capacity upon a 350 days basis would exceed this consumption by 406,153 short tons.

Groundwood capacity on a 310 days basis exceeds estimated 1939 consumption of 1,632,251 short tons by 716,049 short tons.

supply of wood pulp from domestic wood pulp mills. This flat 10 per cent increase cannot, of course, be accurate, for all grades of wood pulp will not react to the same extent. It is merely an attempt to permit a comparison on the basis of today's consumption of wood pulp.

Figuring 1939 consumption 10 per cent above 1938 bleached sulphite pulp consumption (both rayon and paper grades) the total will be 1,372,136 short tons for the year. With domestic production on a 350 days operating basis the margin of safety for converting mills and rayon plants would be 419,664 short tons.

Applying the same percentage to unbleached sulphite we find a potential 1939 consumption of 1,412,780 short tons leaving a deficiency after deducting domestic production on a 350 days basis of 338,780 short tons.

In the case of bleached sulphate 1939 consumption may reach 456,140 short tons which leaves domestic excess capacity on a 350 days basis of 54,860 short tons.

Our estimated 1939 consumption of unbleached sulphate pulp is 2,822,147 short tons which would be 406,153 short tons below domestic capacity on a 350 days operating basis.

Groundwood has the largest capacity excess with a margin of 716,049 short tons above the estimated 1939 consumption of 1,632,251 tons.

Viewpoints

● In a bulletin issued to paper and pulp manufacturers on September 7th, Charles W. Boyce, executive secretary of the American Paper & Pulp Association said in part, "The wood pulp industry is giving the industry concern at the moment. Information as to the possibility of getting overseas shipments through is obviously at this early date sketchy and vague. Rumors as to the internment of cargoes in German boats add to this uncertainty. The pulp market has turned from weakness to great strength and undoubtedly some very foolish bids are being offered.

"In 1914 the volume of overseas pulp shipments was substantially less than it is today and the dependence of the American industry upon such shipments was also less. The records indicate, however, that following an initial increase in prices and considerable uncertainty as to receipt of overseas supplies, shipments came through fairly regularly and subsequent price increases did not occur until the latter part of 1916. This is the only precedent we have to go on. Although it is not directly applicable, it is reassuring to some extent. The problem of what the industry can do in case of actual shortage of supplies is being studied by the association with the view of setting up safeguards in so far as possible."

Quotations on Foreign Pulp Withdrawn

● It was reported in New York on September 7th that prices on foreign pulps had been withdrawn and that importers had little or no pulp on hand which was unsold. They were also said to be out of touch with the mills in Scandinavia due to war conditions and that these mills had withdrawn from the American market.

Paper Mills Prepare for Price Rise

● Immediately following the Labor Day holiday paper mills throughout the country notified their distributors that all prices were subject to change without notice and that the prices on all future shipments would be those prevailing on the date of shipment.

This action indicated the paper manufacturers' realization that pulp prices would be going up and they were preparing to pass the increase along the line to the consumer.

The Monetary Situation

● Prior to the starting of the war the British pound began to decline from the level of $4.68 established last winter, and after Great Britain and France declared war on Germany the pound dropped to a range of from $4.02 to $4.06.

However, the Swedish and Finnsh currencies did not follow suit as the governments of these two countries quickly cut them loose from the pond sterling. Finland's finmark declined from around $.0205 to a low of $.0200, which was a very small decline. The Swedish kronor remained almost the same as it has been since last January remaining on a level around $.2385. Even if the imports of Swedish and Finnish wood pulp had not been at least temporarily stopped by the closing of the Baltic Sea, the American pulp producers would not have suffered further injury by reason of the depreciation of the Swedish and Finnish currencies. However, the level of those currencies is bad enough without any further decline. (See the article entitled "Unbalanced Foreign Exchange Affecting Employment in American Wood Pulp Industry," in the January, 1939 issue of PACIFIC PULP & PAPER INDUSTRY).

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PROPORTION OF UNITED STATES MARKET FOR PULP SUPPLIED BY AMERICAN PULP MILLS AND FOREIGN PULP MILLS*—1936-1937-1938

Tons—2,000 Lbs.

TOTALS By Grades.	1936		1937		1938	
	Pulp Produced By U. S. Mills for Sale in Domestic Market—1936	Pulp Imported Into the United States 1936	Pulp Produced By U. S. Mills for Sale in Domestic Market—1937	Pulp Imported Into the United States 1937	Pulp Produced By U. S. Mills for Sale in Domestic Market—1938	Pulp Imported Into the United States 1938
Total—All Grades (Except Soda Pulp)[1]	530,173	2,265,092	772,693	2,394,539	692,142	1,710,513
Total—Sulphite	494,325	1,298,888	543,607	1,431,575	497,543	1,025,981
Bleached Sulphite	391,252	512,168	408,938	511,961	358,354	337,659
Other	------	------	------	------	259,960	272,440
Rayon	------	------	------	------	102,424	65,219
Unbleached Sulphite	103,073	786,720	134,669	919,614	140,189	688,322
Total—Sulphate	15,852	738,097	55,386	734,215	75,167	516,262
Bleached Sulphate	1,577	102,375	18,978	111,862	47,025	90,173
Unbleached Sulphate	14,275	635,722	36,408	622,353	28,013	426,082
Total Groundwood	18,568	227,778	20,720	218,422	30,203	158,865
Soda	-----	-----	100,976	10,327	72,990	9,405
Total—Miscellaneous, Damaged and Off-Quality	2,008	329	2,004	___	15,472	------

*Table prepared by Pacific Pulp & Paper Industry from United States Pulp Producers Association data on wood pulp production, shipments and stocks; and from import data supplied by the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce.

[1]Soda Pulp included in 1937 and 1938 figures only. Rayon figures included in 1938 figures only.

"Pulp Produced By U. S. Mills for Sale in Domestic Market" includes that part of the stocks on hand at the end of the year intended for future shipment to domestic buyers.

The American Pulp Industry's Position

IN a letter sent to all converting paper mills on August 31st the United States Pulp Producers Association outlined the position of the American wood pulp industry in regard to dumping of foreign pulps and to the problem of depreciated foreign currencies. This letter, which was signed by Oliver M. Porter, secretary of the association, is published here in full:

United States Pulp Producers Association
122 East 42nd Street
New York, N. Y.

August 31, 1939.

To Converting Paper Mills,
Gentlemen:

Recent correspondence and statements appearing in the press, regarding the activities of the United States Pulp Producers Association, are such that it seems timely for us to restate our objectives, to indicate clearly what we are NOT trying to do, and to present proposals for mutual consideration by buyers and sellers of wood pulp.

The objectives of the Association's recent activities have been twofold:

1—To stop the "dumping" of foreign pulps into the United States.

2—To protect the domestic paper and pulp industry against depreciated European currency competition.

In line with those objectives, the United States Pulp Producers Association requested an investigation of all cases of suspected "dumping" of foreign pulps and has studied the problems presented by depreciated European currencies.

We are NOT trying to get a duty on pulp, nor to restrict the free entry of pulp through quota regulations or revenue tax legislation. The Association has not been responsible for the introduction of any legislation whatsoever. It played no part in the introduction of H. R. 7034, H. R. 7312 or S. Res. 160.

H. R. 7034 is now dead. The Association is not supporting H. R. 7312. As far as S. Res. 160 is concerned, we welcome the Tariff Commission's investigation in that it will enable the Commission to bring up to date the factual data contained in its 1938 report on this same subject.

We do not hold foreign producers or their agents solely responsible for the present deplorable condition of the pulp market. We believe that the domestic industry has been injured by the "dumping" of some foreign pulps in the United States and that our efforts to prevent such injury are not only fully justified but are also in the interest of both buyers and sellers of pulp.

On the other hand, we feel that, in one instance, some injustice has resulted from the Government's action in the blanket withholding of appraisals and the required posting of bonds on certain foreign pulps which are generally recognized as having been constructively merchandised. We are endeavoring to correct that situation.

The "protection activities" of this Association were not instigated, nor are they being supported, financially or otherwise, by self-contained mills. We recognize the fact that the domestic mills selling pulp in this market must depend mainly on the Converting Paper Mills of the United States for an outlet for their products; that as you prosper we prosper; and that anything which adversely affects your interests, directly and commensurately affects those which this Association represents — namely, and primarily, the domestic sellers of wood pulp.

Domestic sellers of pulp are not trying to dominate this market or to control the supply of pulp for the Converting Paper Mills. The actual relationship of domestic supply and demand is clearly indicated in the charts and statistics of the attached booklet, which we hope you will accept with our compliments.

We are convinced that the existing situation presents a unique opportunity to correct certain merchandising policies and practices of both foreign and domestic sellers, and that constructive discussion of mutual problems by the buyers and sellers of pulp might go far toward bringing about reasonable and permanent improvement in the marketing of wood pulp.

We recognize the fact that there are always two sides to any question and are prepared to cooperate with all concerned in an endeavor to find a mutually satisfactory solution of our common problems.

Sincerely yours,
(Signed) O. M. PORTER.

● In a letter to John P. Burke, president of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers, on September 8th Mr. Porter further defined the problem faced by the domestic producers of wood pulp and outlined the industry's progra mof action aimed to obtain permanent relief from dumping and depreciation of currencies.

Mr. Porter's letter to Mr. Burke is printed below in full. A copy was sent to Matthew J. Burns, president of the International Brotherhood of Paper Makers.

United States Pulp Producers Association
122 East 42nd Street
New York, N. Y.

September 8, 1939.

Mr. John P. Burke, President
International Brotherhood of Pulp
Sulphite & Paper Mill Workers
163 Broadway
Fort Edward, New York

Dear Mr. Burke:

I have just been discussing matters of mutual interest with Mr. H. W. Sullivan and, in view of your imminent convention, want to bring you up to date as far as our protection program activities are concerned.

We had, and still have, the two following objectives:

1—To stop the "dumping" of foreign pulps in the United States;

2—To protect the domestic paper and pulp industry against depreciated European currency competition.

You know of our petitions to the Government for an investigation of suspected "dumping" of foreign pulps. The Treasury Department's preliminary investigation, through its Division of Monetary Research, resulted in a conclusion that the domestic industry might have been injured by foreign dumping in this market.

On the strength of that conclusion, their European agents have been trying to determine the foreign market values or foreign costs of production. So far as I know, no conclusions have as yet been reached by the Treasury Department as to whether or not foreign pulps have been sold in this market at less

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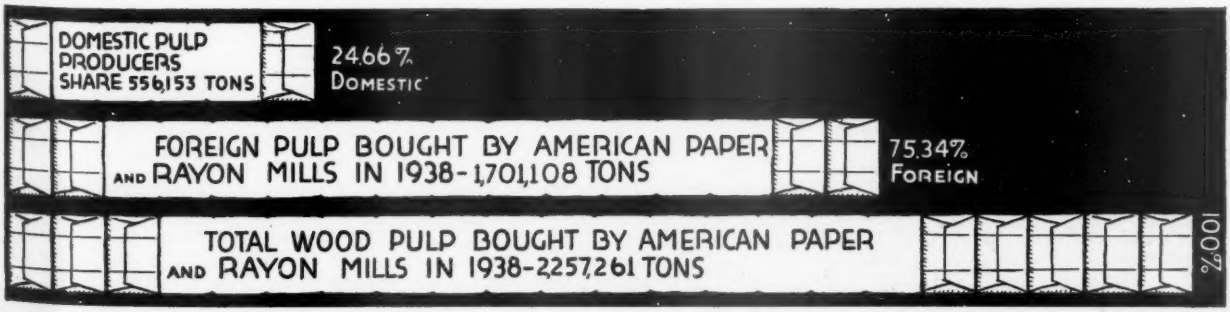
In 1938 —

American Mills Bought 2,257,261 Tons of Wood Pulp
Of This Total FOREIGN Pulp Mills Supplied 1,701,108 Tons
Of This Total AMERICAN Pulp Mills Supplied 556,153 Tons

(Soda Pulp not included)



than their foreign market values. My opinion is, however, that their final conclusions will be that foreign pulps have NOT been sold here at less than they have been freely offered for sale in countries of origin, or at less than their other foreign markets' values or foreign costs of production.

If this should prove to be the case, no further action would be taken by the Government, toward relief of the domestic industry from the dumping of foreign pulps in this market, under the present Antidumping Act.

The Government is withholding appraisals and requiring the posting of entry bonds on "German" pulps and British Columbia sulphite. I presume that from the Administration's point of view, Germany will continue to be kept "in the doghouse" for a long time and that therefore the entry of "German" pulps will be substantially reduced.

It seems likely that the Canadian Government will make strong representations to our Government to lift the restrictions against British Columbia's imports, under the provision of our Reciprocal Trade Agreement with Canada. It is hard to predict what the outcome of such action might be as we certainly have a dumping case against British Columbia.

As the result of our "protection activities," the importers of foreign pulps have successfully organized opposition to our efforts by domestic pulp buyers, to such an extent that there was commencing to be tangible evidence of a boycott of domestic pulps in favor of European pulps.

Fortunately, the War has changed that situation to such an extent that, in all probability, domestic demand will shortly justify full-capacity operation by all domestic mills. Furthermore, increasing war rate insurance and transportation costs, together with the physical difficulties of bringing in foreign pulps, will undoubtedly result in substantial advances in the prices at which foreign pulps will be offered for sale here in the States.

Summing all this up therefore, it looks as though Mr. Hitler had given us at least a TEMPORARY answer to our dumping problems. His war seems however to have only further intensified the prospects of depreciated currency competition.

If imports from Central European countries are entirely eliminated; if the Baltic and North Seas are effectively blockaded and there should be substantial curtailment in the volume of Finnish pulp exports and increasing difficulty in exporting Swedish and Norwegian pulps; and if the domestic mills handle their relationships with domestic buyers intelligently, there is no question but that we will profit substantially from the present War and that many of the problems incident to part-time operation, slack employment and sales of pulp at destructively low prices (to meet foreign competition), etc., etc., will automatically be solved.

After the War, however, foreign shippers will make desperate efforts to regain their American markets and we may again expect vicious competition and "dumping" to an extraordinary degree. It therefore seems only reasonable for us "in time of peace to prepare for war." In other words, we shall most certainly need an EFFECTIVE antidumping act and protective depreciated currency legislation.

Careful study of the Smith Bill (H. R. 7312) has led to the conclusion, both as far as we are concerned and on the part of other national industries which have much more political influence than we have (lumber, agricultural and dairy products, etc., etc.), that it is impracticable as a piece of legislative machinery and impossible of passage, politically. Consequently, it seems advisable NOT to undertake any campaign for the passage of THIS proposed amendment to the present Antidumping Act.

We are quite in sympathy with the PRINCIPLE of the Smith Bill: namely, domestic costs as a basis for anti-dumping protection. What we are going to do, therefore, is to try to develop, through our own attorneys and in cooperation with the industries referred to above, a PRACTICAL bill to amend the present Antidumping law, which, if possible, will include some provision for protection against depreciated currency competition.

It seems to me that Organized Labor could best serve its own interests and most effectively cooperate with us, if its Washington representatives, who are well qualified to do so, would independently undertake to draft some practical amendment to the present Antidumping law which could then be considered by our group and the other interests involved, while at the same time we could submit to your attorneys our ideas for such legislation and thus, eventually, all of us would be enabled to agree upon a Bill to amend the present Antidumping Act which could receive nation-wide support and for the passage of which we could all work together most effectively.

We do not have the slightest intention of discontinuing efforts to obtain protection from the "dumping" of foreign pulp in this market and from depreciated currency competition. We welcome your help because our problems are common in these matters, and I think that if what I have suggested above meets with the approval of those who are responsible for the activities of Organized Labor we should be able to work out plans now for effective protection against foreign competition, with which we will unquestionably be assaulted as soon as the War is over.

Sincerely yours,

(Signed) O. M. PORTER.

Senator Schwellenbach's Letter To Secretary Morgenthau

● Senator Lewis B. Schwellenbach of the State of Washington clearly outlined the case of the American wood pulp producers in a letter to Secretary of the Treasury, Henry Morgenthau, Jr., on July 7th, 1939.

In his letter Senator Schwellenbach brings out several points which are of vital importance to the American pulp industry. He calls Secretary Morgenthau's attention to the foreign practice of "marrying" contracts and to the fact that the declared value as given to the U. S. Customs represents the average value after "marrying" and does not reflect the true low price at which much pulp was sold.

The Senator's letter is reproduced here with permission.

July 7, 1939.

The Honorable Henry Morgenthau Jr.,
Secretary of the Treasury,
Washington, D. C.

My dear Mr. Secretary:

On March 20, 1939 and May 24, 1939, the United States Pulp Producers Association presented to you a request and supplemental request concerning the dumping of wood pulp in the United States by foreign producers. The purpose of this letter is to urge upon you as expeditious handling of this problem as is possible. During the past few years we have had established in the State of Washington a number of pulp plants. The question involved is of very definite importance to me.

As I understand it, the Association's complaint is that bleached and unbleached Sulphite and bleached Sulphate (Kraft) pulps are being entered into the United States from foreign countries generally, in violation of the provisions of the Act of May 27, 1921 (U.S.C. Secs. 160 to 171), known as the Antidumping Act, and with resultant serious injury to the domestic wood pulp industry.

The action requested by the Association is that you investigate the alleged "dumping" of foreign pulps in this market and that, on the basis of the specific instances of "dumping" and the conclusive evidence of resultant injury to the domestic industry presented in support of the Association's petitions of March 20th and May 24th, you withhold appraisals and require the posting of bonds covering entry of such pulps, in all cases of suspected dumping, prior to the completion of your investigations of foreign values and injury to the domestic industry.

The reason for the request is that foreign pulp producers sell on long-term contracts at fixed prices subject to adjustment through the "marrying" of such contracts at lower prices in return for further tonnage commitments. This practice tends to result in the establishment of present market levels as the basis of competitive selling for the next two or three years and deprives the American pulp producers of opportunities to sell the accounts "tied up" by these long-term, low-priced foreign contracts.

Because of the volume of foreign pulp imports (nearly three-fourths of all the pulp which is sold in the United States being of foreign origin) the price of pulp in the United States is governed largely by the foreign producers whose present prices are now below the American cost of production. The sale of foreign pulps at these ruinous prices results in the enforced curtailment of domestic production, loss of employment by American labor and the serious crippling of the domestic wood pulp industry.

UNITED STATES

Wood Pulp Imports by Grades and Countries of Origin—1938
Short Tons

Grade	Countries of Origin: Canada Tons	Canada Value	Finland Tons	Finland Value	Germany Tons	Germany Value	Norway Tons	Norway Value	Sweden Tons	Sweden Value	Others Tons	Others Value	Total by Grades Tons	Total by Grades Value
Mechanical Wood Pulp														
Unbleached	122,216	$ 2,749,838	16,757	$ 374,807	.....	.....	514	$ 22,352	12,109	$ 283,491	.....	.....	151,596	$ 3,430,488
Bleached	.....	.....	115	2,378	.....	.....	.....	.....	7,154	167,643	.....	.....	7,269	170,021
Total	122,216	$ 2,749,838	16,872	$ 377,185	.....	.....	514	$ 22,352	19,263	$ 451,134	.....	.....	158,865	$ 3,600,509
Sulphite														
Unbleached	86,625	$ 3,284,962	117,167	$ 4,459,879	32,917	$1,134,006	4,892	$ 215,033	393,661	$15,789,088	53,060	$2,000,481	688,322	$26,883,449
Bleached														
Rayon	65,218	5,651,498	.....	.....	.....	.....	.....	.....	.....	.....	1	50	65,219	5,651,548
Other	101,806	5,412,047	53,201	2,700,287	5,051	247,179	52,589	3,022,265	44,822	2,306,103	14,972	763,515	272,441	14,451,396
Total	253,649	$14,348,507	170,368	$ 7,160,166	37,968	$1,381,185	57,481	$3,237,298	438,483	$18,095,191	67,853	$2,764,046	1,005,982	$46,986,393
Sulphate														
Unbleached	48,310	$ 2,281,973	68,922	$ 2,508,972	.....	.....	12,060	$ 495,393	296,129	$10,960,877	668	$ 16,464	426,089	$16,263,679
Bleached	33,992	2,287,011	2,617	165,614	.....	.....	310	16,227	53,254	2,994,746	.....	.....	90,173	5,463,598
Total	82,302	$ 4,568,984	71,539	$ 2,674,586	.....	.....	12,370	$ 511,620	349,383	$13,955,623	668	$ 16,464	516,262	$21,727,277
Soda	9,405	463,629	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,405	$ 463,629
Total	467,572	$22,130,958	258,779	$10,211,937	37,968	$1,381,185	70,365	$3,771,270	807,129	$32,501,948	68,701	$2,780,510	1,710,514	$72,777,808

Source: Import Statistics—U. S. Department of Commerce.

Consequently, relief from present dumping must be obtained NOW if continuing and increasing injury to the domestic industry is to be avoided.

I understand that there has been submitted to you evidence of dumping which evidence is in the form of letters, telegrams and price quotations. Because of the agreement between the Association and its members that such information will be kept confidential except as to you, I do not have the direct evidence on this point. However, in going over the situation generally with representatives of the Association, I am convinced that they have sufficient evidence to sustain their position.

By taking full advantage of both direct and indirect subsidies, low labor and ocean freight rates, depreciated currencies, etc., prices of foreign pulps sold in the United States have been progressively reduced more than 50 per cent during the past year or so, until now foreign bleached Sulphite is being sold at least as low as $42 per short ton ex-dock Atlantic seaboard, and unbleached Sulphite at $32—prices substantially below the costs of even the most modern and efficient American mills. These prices are also considerably less than the "fair value" or foreign costs of similar pulps, as defined in the Antidumping Act, which are therefore being sold in the United States in violation of that Act, unless such values are the result of non-competitive transactions or deliberate attempts to establish a fictitious low home market to circumvent the restrictions of our Antidumping Act.

Conclusive evidence of injury to the domestic industry from the "dumping" of foreign pulps in this market has also been submitted in detail to you.

One has only to compare American costs of production and relative freight charges, both ocean and inland, on domestic and foreign pulps, with the prices at which foreign pulps are being sold in the United States, and to realize that the resultant losses, both of business and profits, have forced domestic mills to curtail their production from 30 to 50 per cent while foreign pulp production continues at 70 to 80 per cent of capacity, to understand that the domestic industry has been seriously injured by such foreign competition.

Then, if it is appreciated that as the result of having obtained a stranglehold on the domestic industry through forward selling at "married" contract prices, with deliveries extending over the next two years or more, it can be readily understood that the present injury will continue (unless prompt relief is obtained through the enforcement of the Antidumping Act) to a point where there can be no prospect of any reasonably profitable operation for the domestic industry and not only will the American pulp consumer be entirely at the mercy of the foreign pulp producer, but this basic American industry will be even more seriously crippled than it is at present.

That means more unemployment, greater local relief burdens, less local, state and national tax revenue and increasing dependence on foreign sources of supply for products of a fundamental American industry.

Surely the domestic pulp producers have the right to expect Government relief from the increasing burdens of intensified and subsidized import competition—in short, to expect that the Government of the United States will carry

out the intent of Congress in respect to the prevention of "dumping" of foreign pulps in this market by prompt and vigorous enforcement of the Antidumping Law.

The following tabulation illustrates how European pulp producers who sell on a long-term basis, are able to take advantage of the American producers, who sell upon a quarterly adjustment basis. The dates and quantities are typical of contracts made in the unbleached sulphite pulp market commencing in 1937 when prices of European pulps reached their peak:

Fall	1937	Purchased	2,000	tons	@	$65	$130,000
Spring	1938	"	2,000	"	@	44	88,000
		Averaging	4,000	"	@	54.50	218,000
Summer	1938	Used	2,000	"			
Fall	1938	Inventory	2,000	"	@	54.50	109,000
Fall	1938	Purchased	2,000	"	@	37	74,000
		Averaged	4,000	"	@	45.75	183,000
Winter	1938	Used	2,000	"			
Winter	1938	Inventory	2,000	"	@	45.75	91,500
Spring	1939	Purchased	2,000	"	@	33	66,000
		Average	4,000	"	@	39.37	157,500

The inability of the American Pulp Producers to reduce prices low enough to prevent business from going to foreign producers is indicated in the following tabulation:

		Approximate "Marriage" Contract Price of Foreign Pulp	Approximate Domestic Prices	Difference
Fall	1937	$65	$48	+ $17
Spring	1938	44	44	0
Fall	1938	37	40	— 3
Spring	1939	33	37	— 4
	Average	$44.75	$42.25	$2.50

These transactions may vary in value or actual dollars and cents but the principle covers practically all the foreign pulp trading that has been done during the last two years on the large accounts in the United States. This practice tends to preclude even an opportunity for an American mill to sell its product. If the initial contract had been lived up to and discharged at the end of 1937, an American producer would have had an opportunity to sell his product at the then prevailing market price of (for the purposes of illustration) say, $54, C.I.F. Atlantic dock, and an equal opportunity to have sold his pulp in 1939 at the average compromise price, which the foreign sellers are now enjoying this year on that type of transaction, of $38, to $39, Atlantic seaboard dock. This is the appraisal or invoice figure which is used in making the reports to our Government on values of imports of these non-dutiable goods.

Obviously therefore, in checking a charge of "dumping," it is absolutely necessary to find out what the ACTUAL low price was which enabled the foreign producer to average the price of the total tonnage commitment to the figures which may be shown on entry documents. Unfortunately, it is this LAST LOW PRICE which domestic sellers are always asked to meet on competitive business and which NEVER appears on documents submitted to Government officials.

I will appreciate speedy consideration of this question.

Yours very truly,

(Signed)

LEWIS B. SCHWELLENBACH.

●

Weyerhaeuser Man Drowns Saving Companions

● Darrel Martin, employed by the Everett Mill, Pulp Division, Weyerhaeuser Timber Company, was drowned early on the morning of September 5th in Puget Sound just after he succeeded in attracting the attention of a fisherman to the plight of himself and his two companions who had capsized an hour and a half earlier when their outboard motor boat had fouled a gill net line.

Scott Wiggins, the Anacortes gill net fisherman, who was awakened by Martin's cries for help, managed to rescue Walter Clough, assistant superintendent of the Everett mill, and William Cash, chemist, who were clinging to the overturned boat.

The three men were taking a new outboard boat from Anacortes to Kyak Point about 11 p. m. September 4th when the accident occurred. Their cries for help were unheard due to the high seas running at the time. As complete exhaustion was near Martin set out to swim to the gill net boat along the cork floats of the net which had caused their overturning and he got close enough to waken Wiggins with his cries before he sank. Clough and Cash were exhausted and suffering from exposure in the cold water when rescued as the result of Martin's heroism.

He is survived by his widow, Katherine, and three small sons, and his parents, Mr. and Mrs. D. T. Martin of Marysville.

Seven Months Pulp Imports Up 11.6% Over 1938

● Imports of chemical wood pulp during the first seven months of 1939 amounted to 880,721 short tons as compared with 789,080 short tons in the same period of 1938. The increase was 91,641 short tons or 11.6 per cent.

Chemical wood pulp imports in July amounted to 137,476 short tons of a declared value of $5,265,738 as against 152,725 short tons of a declared value of $5,860,856 in June of this year and 121,919 short tons of a declared value of $5,532,125 in July of 1938.

The July imports included 51,120 short tons of unbleached sulphite pulp valued at $1,812,816; 5,829 short tons of rayon and special chemical grades valued at $438,811; 27,948 short tons of other bleached sulphite pulp valued at $1,243,451; 43,612 short tons of unbleached sulphate valued at $1,321,160; 8,475 short tons of bleached sulphate valued at $422,567; 447 short tons of soda pulp worth $19,612 and 19,694 short tons of groundwood pulp worth $440,281.

Imports of groundwood pulp for the first seven months of 1939 total 110,240 short tons against 87,314 short tons in the same period of 1938.

Westminster Paper Company Continues to Gain

● Westminster Paper Company at New Westminster, B. C., manuafcturers of tissue paper and other paper specialties, is headed towards a new peak in business and earnings during the present year, regardless of war conditions.

The company has established new earnings records each year since 1936.

In the fiscal year ended January 31, 1938, the net profit after depreciation was reported at $87,946, equal to $1.84 per share compared with dividend payments of 50 cents per share the previous year.

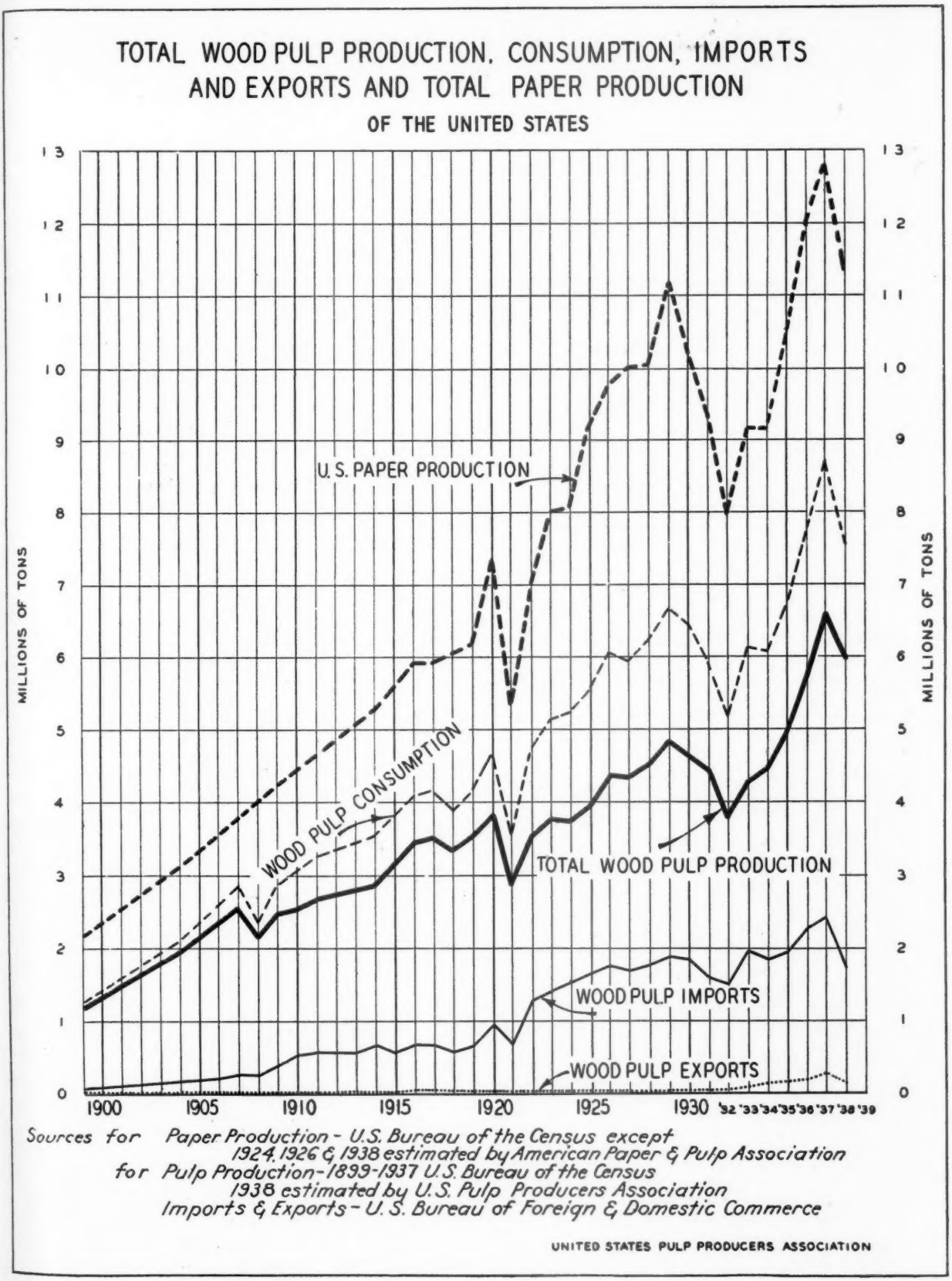
During the same period working capital was increased by $44,918, bringing the total at January 1, 1939, to $167,182.

It is now understood that gains made in the last fiscal year have been consolidated and that the company is moving forward to establish an all-time high in earnings this year.

Introduction of the sanitary napkin as one of the company's products is expected to be an important contributor of revenue in the future.

Throughout the company's seventeen years of activity bondholders and shareholders of Westminster Paper Company have had a particularly satisfactory experience. A piror bond issue of $155,000 was redeemed November 1, 1929. The present issue of 6½ per cent first mortgage debentures due 1950 are in firm hands and net funded debt of the company is being steadily reduced through sinking funds amounting to $109,907 at January 31, 1939.

Common dividends, after a stock distribution of 4 per cent in September, 1931, were placed on a 4 per cent annual basis in 1932 and continued at this rate until 1937 when the rate was increased to 5 per cent per year. In April of this year directors declared 5 per cent on the common stock for the current year, payable May 1 and November 1.


TOTAL WOOD PULP PRODUCTION, CONSUMPTION, IMPORTS AND EXPORTS AND TOTAL PAPER PRODUCTION
OF THE UNITED STATES
MILLIONS OF TONS
MILLIONS OF TONS
0
1
2
3
4
5
6
7
8
9
10
11
12
13
U.S. PAPER PRODUCTION
WOOD PULP CONSUMPTION
TOTAL WOOD PULP PRODUCTION
WOOD PULP IMPORTS
WOOD PULP EXPORTS
1900
1905
1910
1915
1920
1925
1930
'32 '33 '34 '35 '36 '37 '38 '39
Sources for Paper Production - U.S. Bureau of the Census except
1924, 1926 & 1938 estimated by American Paper & Pulp Association
for Pulp Production - 1899-1937 U.S. Bureau of the Census
1938 estimated by U.S. Pulp Producers Association
Imports & Exports - U.S. Bureau of Foreign & Domestic Commerce
UNITED STATES PULP PRODUCERS ASSOCIATION

Pacific Roofing Plant In Operation

Latest addition to roofing production on the Pacific Coast located in Portland, Oregon—Capacity from 6,000 to 7,000 rolls per day—Producing roll roofing, shingles, building papers and felts, asphalt roof coatings.

THE Pacific Northwest's newest composition roofing plant started operations recently when the Pacific Roofing Company went into production in Portland. It is now producing a complete line of roofings, including roll roofing, shingles, building papers and felts, asphalt and roof coating.

The basic material, paper roofing felt, is a Pacific Coast product obtained from California manufacturers. The second important material, the flux or impregnating agent, is a special type of asphalt oil from the Shell Oil Company.

This asphalt oil is stored in a heated tank on the Shell Oil Company property, which adjoins the new roofing factory. It is pumped over to the plant to a company storage and measuring tank, from which it is pumped to the stills.

In the stills, which are heated by Shell fuel oil, the temperature of the oil is raised to 450 degrees F. At the same time, compressed air is forced through, aerating it and removing impurities through a stack. Temperature of the stills is watched by means of recording thermometers, made by the Taylor Instrument Company.

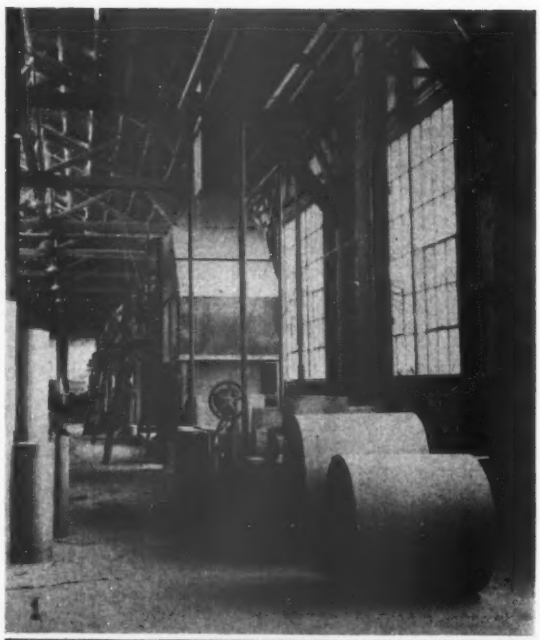
Some of the asphalt is taken from the stills for roof coating and sent to a separate storage tank, from which it is allowed to flow into barrels and "freeze" or solidify. The remainder of the asphalt oil, always kept at working temperature in the stills, is pumped directly into the roofing plant and to the roofing machine.

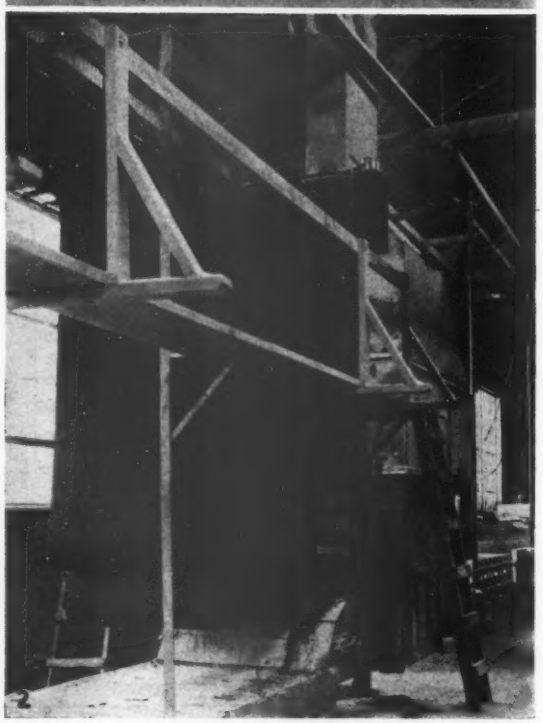
The roofing machine takes a 36-inch felt, which runs over a table and through the first or saturating tank. After saturation it passes over an overhead unit known as a "looper," which is illustrated in the accompanying photographs. Here it loops, as the description implies, giving it time in its progress to set the impregnation.

The second step is the coating, in which the felt is coated on both sides. Immediately following, it passes through a unit which spreads talc or mica on one or both sides, depending on whether or not a mineral surface is to be put on the top.

When a mineral surface is put on, the crushed mineral is rolled in by pressure rolls to assure its adherence. In this way the difficulties of the top surface flaking off, as is the case with some products, are overcome.

● After coating, the roofing passes through a series of drying rolls. These rolls in the Pacific Roofing Company plant are electrically heated, instead of by steam





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The beginning of the saturating process in the new plant of the Pacific Roofing Co. in Portland is shown in No. 1 with the rolls of felt in the foreground and the saturating tank in the background . . . The first of the loopers following the saturating tank show in No. 2.

as is the case in many such factories. The impregnation is finally set here and the roofing then passes over another set of loopers to complete cooling and drying.

Roll roofing is taken off immediately beyond the loopers on a winder which automatically measures the correct footage per roll. This amounts to a strip 36 inches wide and 36 feet long, or 108 square feet.

When shingle roofing is to be made, it passes directly on over the winder and down an incline to the shingle machine, where the various designs of shingles are cut. Packages of shingles are sent to a hand tying machine over gravity conveyor rolls, where they are packaged between boards and labeled.

In packaging the roll roofing, this company uses metal disc caps at each end, which are tied together through the roll by a wire. The roll is wrapped in paper and labeled, the metal disc going on the outside of the end to prevent damage to the roofing. Inside each roll is wrapped a can of lap cement and the proper quantity of roofing nails, as is standard practice in the industry.

At the end of the building, which is 50 by 250 feet, a 50-foot extension serves as a shipping room. A rail spur extends along the building, on which five or six cars can be handled at one time. Warehouse stocks are at present in the main building, but a new warehouse, 50 by 250 feet, will be constructed later on.

● To maintain the standard of quality of their line, which totals about 100 items, including the different weights made, the company maintains a laboratory to constantly determine the percentage of saturation and various other factors which are important in this type of manufacture. Their products have been inspected by the Underwriters' Laboratories, Inc., according to company officials, and approved to carry their label, so must meet the standards at all times.

At the head of this new enterprise is A. E. Otis, president, Portland business man and financier. T. C. Young is vice-president, entering the company after 26 years of experience in this field. H. H. Wade, recently from Oakland but previously a Portland resident, a certified public accountant, is secretary-treasurer. C. F. Humble is superintendent, coming to the new concern after several years with another local company, prior to which he was superintendent of a similar plant in Detroit. Miss Lewis is office secretary.

The market of the Pacific Roofing Company extends through Oregon, south to the California line, through all of Washington, Idaho, Montana and Alaska. The company has its own brand, "Pacific Standard," but deals exclusively through jobbers and usually manufactures under the jobbers' own brand names.

Production capacity of the plant is from 6,000 to 7,000 rolls per day when on a three-shift basis.

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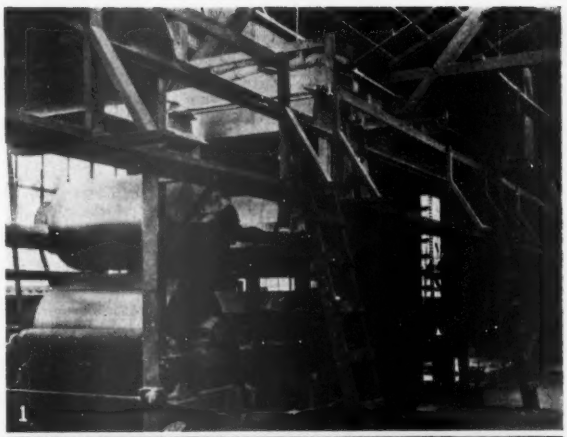
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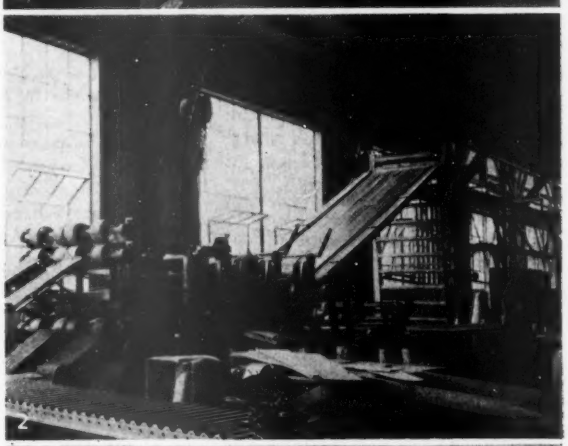
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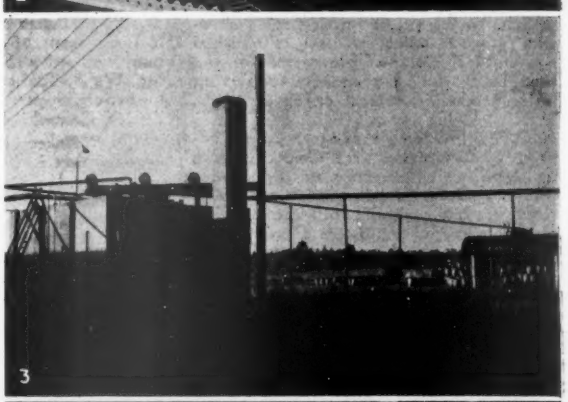
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In the top picture, No. 1, are shown the pressure and heating rolls following the second or coating tank with the first or saturating tank in the background ' ' ' No. 2 shows the finishing end of the roofing machine with the second looper used after coating in the background ' ' ' Below the incline is the roller winder and farther to the left is the shingle machine ' ' ' In the foreground is the roller conveyor for handling shingle packages.

In No. 3 are the asphalt stills at the left and on the right the tank from which asphalt is drawn into barrels ' ' ' In No. 4 are the stills with the Taylor Recording Thermometers which provide a record of the temperature of the asphalt in the stills.

Coos Bay Unbleached Mill Resumes Full Operation

Idle since December 24th, 1937, the 60 to 65 tons per day unbleached sulphite pulp mill of the Coos Bay Pulp Corporation at Empire, Oregon, resumed full production on September 17th.

● On September 17 the unbleached sulphite pulp mill of the Coos Bay Pulp Corporation at Empire, Oregon, resumed full operation, according to an announcement by K. O. Fosse, president of the company.

The mill, which has been idle since December 24, 1937, will produce from 60 to 65 tons per day of high grade unbleached sulphite pulp from Sitka spruce for consumption by American paper mills.

Work on getting the mill in shape for operation began two months ago and the full crew went to work on September 6th. The plant starts with a supply of spruce logs approximating six million feet.

C. Wylie Smith is resident manager and F. H. Mackay is general superintendent. Mr. Smith was in charge during previous operations and Mr. Mackay was formerly associated with the Puget Sound Pulp & Timber Company's mill at Anacortes, Washington.

The Coos Bay mill, which produces sheet pulp, ships by both rail and water directly from the plant, which is located just inside the entrance to the bay.

Rayonier Opens Paper Pulp Sales Office in Kalamazoo

● Rayonier Incorporated, with headquarters in San Francisco and mills in Washington and Florida, announces the opening of a branch paper pulp sales office September 15th in Kalamazoo, Michigan.

M. T. R. Wilbert, well known in the pulp field, will be in charge of this office.

Rayonier, experienced in the technique of manufacturing both dissolving and high-grade paper pulps (having the finest research and technical control laboratories in the world) is keeping abreast of the ever-increasing trend for quality pulps in the paper industry.

The highest techincal skill employed in the development of uniform pulps, places this company in the position to supply permanently, a dependable quality and variety designed specifically for adaption in such diversified fields as Bond and Ledger papers, Book and Text papers, absorbent, saturating and blotting papers. Also various types of specialty pulps used in parchment paper, vulcanized fibre and latex paper, facial tissues and plastics.

The same high standards which distinguish this company's dissolving pulps prevail in their paper pulp grades.

Powell River Installing Laminating Machine

● Powell River Company is now installing an asphalt laminating machine for the production of moisture-proof and air-resistant wrappers for its newsprint rolls.

In the past the company has used laminated paper for the protection of the rolls of high-grade newsprint, but it has been obtained from other mills. Increasing use of this type of wrap convinced company officials of the wisdom of producing their own.

St. Helens Improvements

● The St. Helens Pulp and Paper Company of St. Helens, Oregon, has recently increased the capacity of the chip bins to provide a reserve supply while the wood room is operating on a basis of one shift. The increase amounts to 100% of former capacity.

The company is going to install a Thomlinson furnace in its kraft mill recovery system. The material has arrived at the mill and installation will start about the first of the year.

At the present time the St. Helens plant is running on full schedule and producing to capacity.

Powell River To Hold Jobs Open for Army Men

● Employees of Powell River Company, major British Columbia newsprint mill, who enlist in the armies, navies or air forces of the Allied powers can count on getting their jobs back after demobilization, according to a statement issued by D. A. Evans, resident manager of the company.

A large proportion of the Powell River office and mill crews are ex-service men. The company employs very few foreign-born workers. John MacGregor, long service employee, is the holder of the Victoria Cross, the British Empire's highest award for valor in battle.

Postpone Construction of Hawaiian Pulp Plant

● Due to the present unfavorable situation of the sugar industry, the Maui Agricultural Co. has postponed for the time being the erection of a dissolving pulp producing plant at Paia, Maui, T. H.

H. L. Joachim, manager, pulp division, Maui Agricultural Co., continues in a consulting capacity until the project is revived. In the meantime he is resuming his work as consultant and has made arrangements to spend part of his time in Los Angeles and part in San Francisco.

Hawley Wins Again

● For the fourth time the float of the Hawley Pulp & Paper Company of Oregon City, Oregon, won first prize in the commercial division of the big parade held in conjunction with the Fourth Annual Territorial Days Celebration in August.

The sixteen-page program for the celebration was printed on Hawley cover stock contributed by the company. The management and the employes of the Hawley Pulp & Paper Company take a very active part in civic affairs. Their participation in the latest Territorial Days Celebration is but one example of their interest.

Juenger of Texas Gulf Visits Coast

● Fred Juenger, traffic manager of the Texas Gulf Sulphur Co.; was on the Coast early in September for a few days, after spending some time on vacation with his wife in California.

Baker Appointed Powell River P. A.

● R. A. Baker has been appointed purchasing agent of the Powell River Company, effective September 1st, succeeding W. A. McLeod, who resigned after twenty-eight years service with the big British Columbia newsprint mill.

"Reg" Baker joined the Powell River organization in July, 1922, and for several years he was employed in the engineering office as secretary to Robin Bell-Irving, vice-president, who was then resident engineer at Powell River.

During that period he gained wide experience in requisition and purchase of supplies for plant extension. On completion of the construction program, Baker was transferred to the purchasing department, and since 1932 he has been secretary to the resident manager, R. A. Evans.

Baker served overseas with the 72nd Seaforth Highlanders in the Great War and for two years after the war was with the purchasing department of the Soldiers' Civil Re-establishment organization.

Bill Foren Running Auto Court

● W. E. Foren, formerly superintendent of the Columbia River Paper Mills at Vancouver, Washington, is now proprietor of his own business. Mr. Foren owns and operates Young's Auto Court, a modern and attractive establishment in Salem, Oregon, and his new work keeps him in touch with the pulp and paper industry, for many of his customers are men from the mills in the Northwest.

J. D. Zellerbach Awarded C-Z 25 Year Service Pin

● In the presence of executives and members of the headquarters staff, J. D. Zellerbach, president of the Crown-Zellerbach Corporation, was presented with a 25-year service pin September 7.

The presentation took place at the San Francisco offices of the corporation, and was made by I. Zellerbach, father of J. D. Zellerbach, and chairman of the executive committee of the company.

J. D. ZELLERBACH, President of Crown Zellerbach Corporation, completed 25 years of service on September 7th.

Sidney Roofing Company Suffers From Fire

● The Sidney Roofing & Paper Company, Ltd., of Victoria, B. C., suffered the complete loss of its groundwood pulp mill by fire early in the morning of August 4th. The mill had a capacity of 10 tons of groundwood pulp per day.

The fire, believed to have been of incendiary origin, was started on the windward side of the plant, which Victoria fire authorities believed precluded any possibility of it having been started by sparks from the stack of the Canadian Western Cooperage Company located on the leeward side. A high southwest wind blowing at the time would have blown any sparks away from the plant.

The loss, estimated at approximately $20,000, was three-quarters covered by insurance.

The Sidney Roofing & Paper Company, Ltd., manufactures roofings, building papers, felts, box board and test board. J. W. Spencer is president of the company; R. W. Mayhew, general manager, and Mitchell Thom, superintendent.

Teren Vacationing In British Columbia

● Nils Teren of the Columbia River Paper Mills and associated interests, left early in September on a vacation. He planned to spend about three weeks in the wilds of British Columbia.

Westminster Paper Calls All Bonds

● Financial arrangements have been made by Westminster Paper Company which will permit the calling of all outstanding bonds at 103 April 1, 1940.

The company's 6½ first mortgage sinking fund debentures, due April 1, 1950, are callable at 105 to March 31, 1940, and thereafter at 103. Accordingly, bondholders who retain their bonds until next April face the prospect of getting 103 when the bonds are called as against the present market slightly in excess of 105.

However, the company's requirements for sinking fund payments will make it possible for holders of a limited amount of the bonds to cash in at 105 on November 1.

Of the original issue of $300,000 dated April 1, 1930, there was $204,500 outstanding at January 31, 1939, the balance having been redeemed through operation of the sinking fund. Of this $204,500, however, the company had $91,500 in its sinking fund. This sinking fund has been accumulating at a faster rate than is generally realized. Requirements called for payment of $5,000 into sinking fund on November 1, 1931, and $10,000 annually thereafter.

Interest payments at 6½ per cent on the company's own bonds held in sinking fund account have gone to increase the total to the credit of the fund, with the result that a substantial sum has accrued annually from this source also.

Thus the company finds itself with a funded debt of about $200,000 of which half is held in sinking fund. As it is possible to incur a bank loan of $100,000 at 5 per cent, the company announces its intention of calling all the outstanding 6½ per cent bonds on April 1 next at 103.

The saving in annual interest charges will further improve the earning power behind the common shares.

Retirement of the bond issue will incidentally release the city of New Westminster from its guarantee.

Brooks Returns From South American Tour

● S. D. Brooks, president of Powell River Comapny, has returned to Vancouver, B. C., head office, after several months touring South America.

Inland Empire Reports Profit on 1938 Operations

● For the first time in five years the Inland Empire Paper Company showed a profit in 1938, according to an announcement August 18th by A. W. Witherspoon of Spokane, president of the company.

"Although the profit was only $5,981.44, it is a sign of better conditions," Mr. Witherspoon stated. He credited an increase in volume for bringing the company out of the red in spite of low prices.

Bloch Visits C-Z Mills and Logging Operations

● Louis Bloch, chairman of the board, Crown-Zellerbach Corp., San Francisco, made a visit to the mills and logging camps of his company in the Northwest last month.

Antioch Expands Carton Department

● Due to the gradual increase in connection with Fibreboard Products, Incorporated, corrugating and carton business, the space provided about twelve years ago at the Antioch, California, plant has now become much too crowded to permit efficient operation, and in view of this construction of additional buildings approximately 63,000 square feet of floor space, will start soon.

The new building will adjoin the present corrugating and carton buildings and will be used principally for the corrugating department. This will mean moving all of the corrugating equipment into the new building and the present corrugating department will be used principally for carton department flat stock storage and pail manufacture.

It is expected that the new building will be completed early in November, permitting the transferring of equipment, etc., during the more quiet winter months.

The new building, on the south, will be provided with a car-loading platform extending one half of the length of the building and this will be of direct benefit to the present crowded north carloading platform.

Plans are being prepared by Mr. L. S. Rosener of San Francisco, consulting engineer for the company.

●

TAPPI Dinner Meeting In Seattle October 3rd

The first of the 1939-1940 Dinner Meetings sponsored by the Pacific Section of TAPPI will be held on TUESDAY evening, OCTOBER 3rd, at the Hotel EDMOND MEANY, East 45th Street and Brooklyn Avenue, Seattle. The time is 6:30 p. m. The program will be announced later as it was not completed in time for publication in this issue.

Dr. H. V. TARTAR of the Department of Chemistry and Chemical Engineering of the University of Washington and a member of the Executive Committee of the Pacific Section, is chairman in charge of arrangements and reservations should be sent to him.

Crown Zellerbach Earnings Rise in First Quarter

Net profit for first quarter of fiscal year, April 30th to July 31st, of $1,729,874 compares with $970,055 in same period a year ago, an increase of 78%.

● Earnings of Crown Zellerbach Corp. and subsidiaries for the first quarter of the company's current fiscal year continued to move upward to the highest level for any three months' period since the quarter ended October 31, 1937. Net income showed a gain of 78.33% over the like 1938 quarter and an increase of 12.98% over the preceding quarter.

For the three months ended July 31, 1939, the company reports consolidated net profit of $1,729,874 after all charges, including depreciation, depletion, interest and taxes, and minority stockholders' proportion of net profit of Pacific Mills, Ltd., equal after dividend requirements on 529,665 shares of $5 cumulative convertible preferred stock outstanding to 47 cents on 2,261,199 shares of common outstanding. This compares with consolidated net porfit of $970,055 for the first quarter of the preceding fiscal year, equal to 13 cents on the common after regular preferred dividends.

Reflecting the improving nature of the paper business, net sales for the first quarter amounted to $12,778,623 compared with $11,732,900 in the comparable three months period of the preceding fiscal year. Cost of goods sold was relatively stable, amounting to $8,277,928, compared with $8,145,781. Charges for depreciation and depletion were higher, the total of these items being $1,020,748 in the quarter just ended, compared with $955,385 in the like period of the preceding year.

A summary of consolidated profit and loss of Crown Zellerbach Corp. and its subsidiaries for the three months ended July 31, 1939 (subject to annual audit and year-end adjustments), compares as follows:

	1939	1938	1937
Net sales	$12,778,623	$11,732,900	$14,172,051
Cost of goods sold	8,277,928	8,145,781	9,007,906
Profit on sales	$ 4,500,695	$ 3,587,119	$ 5,164,145
Operating expense	1,482,466	1,417,072	1,479,625
Operating income	$ 3,018,229	$ 2,170,047	$ 3,684,520
Other income	383,927	254,886	*666,269
Total income before pr. charges	$ 3,402,156	$ 2,424,933	$ 4,350,789
Depreciation	839,528	810,882	835,363
Depletion	181,220	144,503	203,693
Interest	145,403	220,023	230,942
Other expenses	88,946	36,126	106,873
Minority interest	12,837	10,474	17,039
U. S. and Canadian income taxes	404,348	232,870	449,168
Net profit	$ 1,729,874	$ 970,055	$ 2,507,711

*Includes Crown Zellerbach equity in earnings of Fibreboard Products, Inc.; in 1938 and 1939 only dividends received were included.

Benjamin Visits Coast From Australia

● Louis R. Benjamin, general manager of the Australian Newsprint Mills, Limited, of Hobart, Tasmania, formerly the Derwent Valley Paper Company, Limited, spent about two months on the Pacific Coast this summer returning to Tasmania early in September. Mrs. Benjamin accompanied her husband and again visited a number of friends which the Benjamins made on their previous trips to this country.

Mr. Benjamin has devoted twenty-two years to research and development work toward establishing a domestic newsprint industry in Australia employing native woods. In September, 1940, he will see the successful conclusion of his years of effort when the first unit of the Tasmania plant begins operations. Production will be at the rate of 27,000 long tons per year at the start, but the mill near Hobart in the Derwent Valley will eventually have an annual capacity of 100,000 long tons. Some $15,000,000 will be invested in the enterprise to make Australian newspapers partially independent of newsprint imports.

Groundwood will be the only pulp produced at the start, Mr. Benjamin said, and unbleached sulphite will be imported. Later on the sulphite will be produced from the eucalyptus regnans as well as the groundwood, making the mill entirely self-contained.

About five years ago Mr. Benjamin supervised the commercial experiments in the pulping of eucalyptus at Pacific Mills, Limited, in Ocean Falls, B. C., in cooperation with the Crown Zellerbach Corporation. Upon the successful completion of these experiments the mill in Derwent Valley is being constructed.

Incidentally the Derwent Valley Paper Company was the development organization and when actual construction of the newsprint mill was decided upon the name was changed to the Australian Newsprint Mills, Limited. The principal backers are the publishers of the large daily newspapers in Australia.

The price of newsprint in Australia is on a sliding scale based upon the New York price (at present $50) plus a duty of about $4 per ton at this time. The higher the New York price the less the duty and vice versa. The Australian government adopted this method of providing sufficient protection to justify the establishment of the newsprint industry in Australia.

The Tasmania mill was designed by and is being constructed under the personal supervision of Percy Sandwell of Vancouver, B. C., as chief engineer. Mr. Sandwell was for many years actively associated with the Powell River Company and other pulp and paper organizations. For several years prior to his accepting the Tasmania assignment on a five-year basis, Mr. Sandwell was in private practice as a consulting engineer in Vancouver, B. C.

The modern newsprint machine was ordered from Walmsley's, Limited, of Bury, England, and it will have a Harland electric drive. The Australian General Electric Company received the order for two 3,600 horsepower synchronous motors for the grinders. The latter will be built in Australia through licensing arrangements with American manufacturers. This same arrangement has been worked out on other equipment going into the mill.

The construction contract for the mill buildings and the office building was signed the middle of July. Prior to the signing of this contract the site, about 9 miles from Hobart, Tasmania, had been cleared and the necessary excavations made. The dock on the Derwent River is completed and the railway spurs installed.

The power contract is the second largest in Australia. It is for 11,500 horsepower a year for twenty years, with the right of the company to increase its load up to a maximum of 25,000 horsepower when the mill is fully developed. The Hydro-Electric Commission of Tasmania is planning a large extension of its facilities to meet the new demand.

Australia will continue to be dependent upon Canada and other countries for the major portion of its newsprint for several years after the mill in Tasmania begins operations. Last year Canadian producers signed a contract providing for the sale of between 75 and 80 per cent of Australia's and New Zealand's newsprint requirements for a seven-year period expiring December 31, 1946.

Mr. and Mrs. Benjamin sailed from San Francisco for home on September 12th.

British Columbia View of the Pulp Situation

● Pulp manufacturers in British Columbia expect to benefit indirectly from the European war as a result of the total elimination of German competition and the diversion of a large proportion of Scandinavian pulp to other markets.

Pulp men aren't making any predictions yet, for at the time of writing the war was little more than a week old. But logic favors them for the long term, and already some of the pulp manufacturers have had practical evidence that the war will propably bring about an entirely new market alignment for pulp throughout the world.

British Columbia Pulp & Paper Company, whose two mills at Woodfibre and Port Alice on Vancouver Island were closed last year because of the Sino-Japanese war and which only recently re-opened to take care of a few limited orders divided about equally between Japan and the domestic and European market, is expected to profit from the elimination of European competition. The public evidently shares this feeling, for the company's securities have advanced appreciably since the war broke out.

When B. C. Pulp converted both of its mills into producers of bleached sulphite pulp, leaving the British Columbia field without a domestic supply of unbleached pulp, Powell River Company, anticipating business from the Orient, installed a Kamyr machine. This operated spasmodically and several shipments were made to the United Kingdom and Japan when the war broke out in the Far East, unsettling the whole market and forcing a shutdown. Since then the Kamyr plant has been operating on greatly reduced production schedules, but since the war started in Europe the company has had reason to expect that unbleached pulp will be in strong demand and that its Kamyr machine will be operated steadily. Inquiries have come from as far away as India and other distant markets previously served by Germany, which under normal conditions produces about 800,000 tons of pulp for export. Powell River's Kamyr unit has a capacity of 20,000 tons.

Removal of German competition from world markets cannot fail to be to the advantage of pulp mills on this continent, according to Oscar A. Jorgenson, assistant manager of B. C. Pulp & Paper Company, who has been in close touch with pulp sales throughout the world for years.

● "No one will deny that German and Scandinavian pulp has been an unsettling factor for a long time," said Mr. Jorgenson. "The coast mills had a base price of $50 a ton and this was settled upon a reasonable basis with due regard for cost of production and market requirements. Entry of Scandinavian and German pulp forced this price down in numerous instances to an uneconomic level. Removal of this pressure will contribute to more orderly marketing on a more stabilized price basis."

German exports of pulp will, of course, be thoroughly bottled up by the blockade of the British fleet. Swedish, Norwegian and Finnish pulp will still be available for the world market, but to a less extent.

"European countries which formerly depended on Germany for their pulp supplies will now be forced to turn to Scandinavia and the Baltic countries," explained Mr. Jorgenson. "Scandinavian pulp will also be called on to fill the gap created by withdrawal of German pulp from other more distant customers. Scandinavian pulp mills cannot look after this new business and at the same time remain a powerful factor in the North and South American markets and they will probably lose ground in the Orient, too. They will be forced to make most of their shipments in their own vessels, of which there is a limited supply. British tonnage will be too busy with more essential war trade to carry much of the neutral exporters' load to competing markets. This is going to mean less tonnage and costlier tonnage. Freight rates will be higher and there will be the additional cost of war risk insurance. Under war conditions production costs will be greater in the Scandinavian mills, too. All these elements are bound to benefit Pacific Northwest operators."

Before the war, Germany exported about 20 per cent of her pulp production and much of this went to the United Kingdom, the United States and South America. The shipping situation and the increasing costs of production in Europe are expected to favor Canadian and American mills in meeting South American requirements to the exclusion of the Scandinavians. The extent to which the Pacific Northwest will be able to cater to the pulp needs of the British Isles will depend chiefly on the availability of ships. In this respect the industry will face much the same problem as the lumber industry, which in British Columbia is in a considerably more vulnerable position by reason of the fact that in recent years the United Kingdom has absolutely dominated the trade. More than 90 per cent of British Columbia's waterborne lumber exports in recent months have been shipped to the United Kingdom. War's uncertainties and the ship shortage have resulted in swift collapse of that market, although it may ultimately recover if the shipping situation is adequately controlled. Lumbermen are considering the possibility of shipping their product by rail to the Atlantic seaboard for transshipment under convoy to the United Kingdom. This would be a costly process and possible only under the emergency of war, but if it would be feasible for lumber it should be more so in the case of a less bulky freight such as pulp. It will depend a good deal on how much the United Kingdom needs the pulp. British Columbia pulp mills have been shipping a fairly substantial part of their exports to the United Kingdom in the past, in spite of their distance from the market and the proximity of Scandinavia. British Columbia Paper Company, for instance, has shipped as much as 20 per cent of its exports to the British Isles. Given satisfactory shipping arrangements and in consideration of Scandinavia's war handicaps it may be possible to maintain or even increase this business, although it seems as though nearer markets would obtain the bulk of this trade.

One worry of the pulp industry in British Columbia, although not yet a serious one, is whether it will have an adequate supply of pulpwood if the war results in closing down many of the logging camps. Some of the pulp mills operate their own camps, but a large supply of pulpwood comes from the open market which is fed by independent loggers whose major sale is to the Douglas fir and cedar mills. If these independents find it unprofitable to operate just to supply the pulp mills, pulp logs may cost more. But that is an eventuality that may be met when it happens.

B. C. May Place Embargo On Pulpwood Logs

● British Columbia pulp makers believe that the stress of war may result in the Canadian government placing an embargo on export of pulpwood logs, and they will strongly applaud the move when it is made.

Germany was one of the big buyers of logs in the Canadian market during the past year. Most of its purchases were made in eastern Canada, although several shipments were made during the past spring and summer from Vancouver and other B. C. ports. Germany, of course, has been automatically eleminated as an outlet, but Japan is still buying logs and so is Australia.

There probably will be a strong opposition to an embargo on logs, as powerful export companies are profiting from the trade, but pulp mill operators declare that the present is a short-sighted policy as it is depriving British Columbia industry of its future raw material for the present benefit of foreign manufacturers and a few middlemen and shipping lines.

Log exports from land controlled by the provincial government are rigidly restricted to instances where the pulpwood comes from areas not suitable for exploitation by Canadian mills. Under this category is some of the pulpwood towed to Washington state pulp mills. But most of the logs are exported from Crown grant or federally controlled forests over which there is no restrictive regulation.

Pulp makers in Canada hope that as a war measure the Canadian government will regard prohibition of log export as part of a national economic policy.

Soundview Shows Improvement In August

● Operations of the Soundview Pulp Company of Everett, Washington during August netted a profit of $34,438, after depreciation and Federal income taxes, compared with $32,604 in July.

August pulp production was 9,590 tons and sales 8,514 tons. Production in July was 6,635 tons and sales were 9,118 tons.

Petrie Returns From European Trip

● Robert T. Petrie of Portland, Oregon, Pacific Coast representative for Bagley & Sewall, returned August 28th from a two and a half months' trip which took him as far as his old home in the Shetland Islands off the coast of Scotland.

Leaving shortly after the joint meeting of the superintendents and TAPPI in Tacoma the first of June, Bob went to Watertown, New York, for a conference at Bagley & Sewall's headquarters before taking a boat from Montreal to Glasgow, Scotland.

Bob and his two brothers were home together for the first time in 32 years for a visit with their mother who is now eighty-six. While in the British Isles Bob visited several mills in Scotland and England.

After another week in Watertown he called on a number of mills in the middle west on his return trip to Portland.

Hawley Report for 1938 Shows Improved Position

Although the net profit for 1938 of $87,801 as compared with $145,432 in 1937, the operating deficit was reduced from $579,625 to $460,464—Current assets $1,128,415 against current liabilities of $368,358.

● Late in August the report of the Hawley Pulp & Paper Company for 1938 was released by Major Watson Eastman, president. The report showed the company to have made a net profit in 1938 of $87,801 as compared with $145,432 in 1937.

Net gain for the company after all adjustments was $119,161 compared with $173,011. The year's gain was reflected as a reduction of the existing operating deficit from $579,625 to $460,464.

Sales of the Oregon City paper manufactory were down 19.3% last year. In amount they were $3,053,071 against $3,783,191 in 1937, which year recorded the highest sales volume of the company's history. Net sales in 1936 had been $2,875,995 and in 1935 had been $2,612,261.

Total operating, administrative and selling expenses of 1938 was $2,562,445, down 18.8% from the $3,168,026 similar expense of 1937. Direct operating cost of manufacture showed proportionately greater reduction than did value of sales. It was down 21.4% at $2,359,-119. The relative gain was slightly more than offset by a rise of administrative and selling expense from $117,251 to $203,326. Depreciation-amortization allocation was $274,514 vs $277,754, and is not included in expenses just mentioned.

Corporate Income Down

Corporate income was $252,883 vs $378,597, upon including $36,772 of "other income" in 1938 and $41,186 in 1937.

Report of President Watson Eastman stated that profit of the year accrued entirely in the last half of the year. He looked for a continuation of improved conditions but explained that repairs and maintenance may cut into profits more heavily this year. Such expense, he said, was held to a minimum practicable level last year because of the decline in sales.

The company now also faces payment of full 6% interest on its bonds. The 5-year period of 4% interest provided under the reorganization expired December 31, 1938. On July 1 it resumed the old rate, paying 3% as the semi-annual payment.

Comparative profit and los statements of 1938 and 1937 compare as follows:

	1938	1937
Net sales	$3,053,071	$3,783,191
Cost of sales	2,359,119	2,990,774
Gross sales profit	693,951	792,416
Less:		
Admin. selling exp.	203,326	177,251
Deprec.-amortiz.	274,514	277,754
Profit from sales	216,110	337,411
Other income	36,772	41,186
Corporate income	252,883	378,597
Deduct:		
Interest	55,983	65,386
Amort. disc. expense	10,094	15,021
Loss on timber cut	12,675	14,012
Timberland expenses	22,554	30,277
Cash discounts	33,552	30,192
Other charges	3,627	22,460
Provision inc. taxes	36,718	55,813
Net profit	87,801	145,432

It is to be noted that surplus scored an increase of $221,448 for the year. Changes in surplus account in 1938 and 1937:

	1938	1937
Initial surplus	$1,415,493	$1,415,493
Less oper. deficit	579,625	752,636
Surplus Jan. 1	835,867	662,857
Add:		
Chgs. restored	75,691	----------
Profit on bonds	23,877	58,421
Donated—debt reduction	102,287	----------
Year's profit	87,801	145,432
Int. on claim	----------	8,560
Deduct:		
Claim adjust.	----------	39,403
Adjust disc. exp.	12,562	----------
Year-end surplus	1,057,316	835,867

Surplus Up; Deficit Down

In the two years 1938 and 1937 surplus of Hawley company has been increased $396,459, from $662,857 to $1,-057, 316. In the same time operating deficit has been sliced by $292,172, from $752,636 to $460,464. In the three years from end of 1935 surplus was increased nearly $500,000 from $571,857 and deficit was cut down by $383,857 having then stood at $853,636.

Year-end figures showing trends of net surplus and operating deficit:

	1938	1937	1936
Oper. deficit	$ 460,464	$579,625	$752,636
Net surplus	1,057,316	835,867	662,857

Reference to the balance sheet figures shows that outstanding bonds were reduced last year from $1,100,000 to $915,000. This $185,000 reduction was below the average of about $250,000 effected during previous years. However, debt reduction was accomplished at other points. For the first time since reorganization, the company paid on the note, originally for $500,000, but outstanding for several years as $535,000. Note and interest, which reached a total of $595,000 in 1937, were whacked to $481,052. Principal of the note was reduced $126,011, from $535,000 to $408,-989. Note is due January 1, 1943. Combined long-term and short-term debt thus was reduced $311,011 during the year, or considerably more than the annual average for the preceding four years.

YEAR-END BALANCE SHEETS

Assets	11/31/38	11/31/37
Current:		
Cash	$ 54,281	$ 190,796
Securities	27,140	41,410
Accounts, notes, less loss reserve	385,167	425,468
Inventories	661,826	826,075
Total	1,128,415	*1,177,590
Deposit with trustee	3,259	3,943
"Available funds"	341,584	326,083
Plant, equip., etc., less depr.: $2,-822,379 in '38, $2,651,193 in '37	3,581,566	3,762,231
Timberlands	1,900,781	1,905,007
Leasehold	7,665	7,665
Deferred charges	78,511	96,116
Total assets	7,041,783	7,278,637
Liabilities		
Current:		
Accounts payable	$ 131,717	$ 114,631
Wages, commissions	96,741	94,633
Accrued taxes	75,900	83,300
Provision inc. taxes	64,000	83,000
Total	368,358	375,564
Hosp. fund reserve	10,113	10,113
1st mtg. 6% bonds	915,500	1,100,000
Int. due 1946	54,930	66,000
Int. accrued, plus tax	38,420	180,000
Note and interest	481,052	595,000
Stated capital	4,116,091	4,116,091
Initial surplus, less opr. deficit: $460,464 and $579,625	1,057,316	835,868
Total liabilities	7,041,783	7,278,637

*This represents total of current assets less $306,083 included below as "available funds."

More Bonds Retired

Early this year the company acquired out of available funds offerings of bonds totaling $132,500. Completion of those purchases reduced bonds outstanding to $783,000. Doubtless the company this year will, if it has not done so, effect reduction of the note comparable to that achieved in 1938.

Current position of the company remained satisfactory; in fact showed little change. Working capital was $760,000 on December 31 as compared with $802,-000 a year earlier.

Net worth increased by the $221,448 gain in surplus, to $5,173,407. This is subject to reduction in the amount of $420,000, representing first preferred dividends, which accrued prior to January 1, 1934, but are to be payable after fixed debt has been extinguished. After allowing $2,470,000 for the 20,000 shares of $7 first preferred stock the book balance of $2,703,407 would remain as applicable to the 8,000 shares of npv $6 second preferred and 200,000 shares of $1 pv common stock.

It is worthy of note, says the Oregon Voter in commenting upon the report, that the company paid full maximum 4% interest throughout the 5 years of reorganization moratorium. The plan provided that after expenses and prescribed depreciation allocation, interest should be paid the bondholders "up to 4%."

ADDED LIFE FOR TABLE AND FELT ROLL BEARINGS

This new rubber collar for table and felt rolls developed by Black-Clawson is efficient because it is simple.

The drawings describe it . . . a rubber collar to absorb the jar and protect the bearing as the shake throws the roll against the side rail. This collar will extend bearing life at least ten fold . . . costs but a few cents apiece . . . can be slipped on in a minute's time . . . and should last indefinitely.

Also desirable for felt roll bearing protection when changing felts. Will absorb the stress on the bearing at the far end as the roll is "sprained" upward to slip the old felt off and the new one on.

Also compensates for any misalignment due to a sprung felt roll.

This rubber collar is a simple but important development that you should consider when replacing any table or felt roll. Write today for full particulars. The Black-Clawson Co., Hamilton, Ohio. Owners of Shartle Brothers.

BLACK-CLAWSON

Production Rule Developed By Ocean Falls Operator

● A circular production rule for paper mill operations has been developed by Peter A. Frattinger of Pacific Mills, Limited, Ocean Falls, B. C., which gained instant favor with the operators at Ocean Falls.

"At the suggestion of J. Denholme, one of our paper makers at Ocean Falls," says Mr. Frattinger, "that a pocket calculator should be developed so machine tenders could easily calculate speeds for weight changes, and machine usage when the basis weight, speed and trim were known, this pocket scale was evolved.

"Two different models were made up after considerable thought and work, one in the form of a slide rule and the other, shown in the photograph, was made flat and about 4 by 6 inches in size, although it can be made either smaller or larger.

"The scale shown gained instant favor here at Ocean Falls with machine tenders, finishing room operators, and beater room men, as the slide rule type seemed too complicated for average use.

"By a simple setting of the top scale and then the lower one such problems as the machine usage when any basis weight, speed and trim are known, is given for both 480 and 500-sheet reams. By first setting the bottom scale to the usage on the machine and bringing the top scale to the proper wire trim any combination of basis weight and speed in feet per minute is given and this is invaluable to the operator in weight changes alone."

A paper model of the production rule may be seen in the office of the Pacific Coast Supply Company, Pittock Block, Portland, Oregon.

New Zealand Mill Now Operating

● The pulp, paper and board mill of the Whakatane Pulp & Paper Mills, Ltd., of Whakatane, New Zealand, started operations on March 29th according to the American Consul at Wellington.

At present paperboard only is being produced but the company expects to install a chemical pulp mill and later on manufacture newsprint. Insignis pine, native of California and transplanted to New Zealand some years ago, is being used as the raw material along with waste paper.

The mill was designed by and built under the supervision of L. A. De Guere, pulp and paper mill engineer of Wisconsin Rapids, Wisconsin.

Link-Belt Issues New Pacific Coast Catalog

● The Pacific Division of the Link-Belt Company, with plants and warehouses at San Francisco, Los Angeles, Portland and Seattle, is distributing to those interested their new general catalog.

Catalog No. 40, a 6x9-inch book of 325 pages, is devoted to power transmission and elevating and conveying machinery. It gives list prices, dimensions, weights and contains much engineering data.

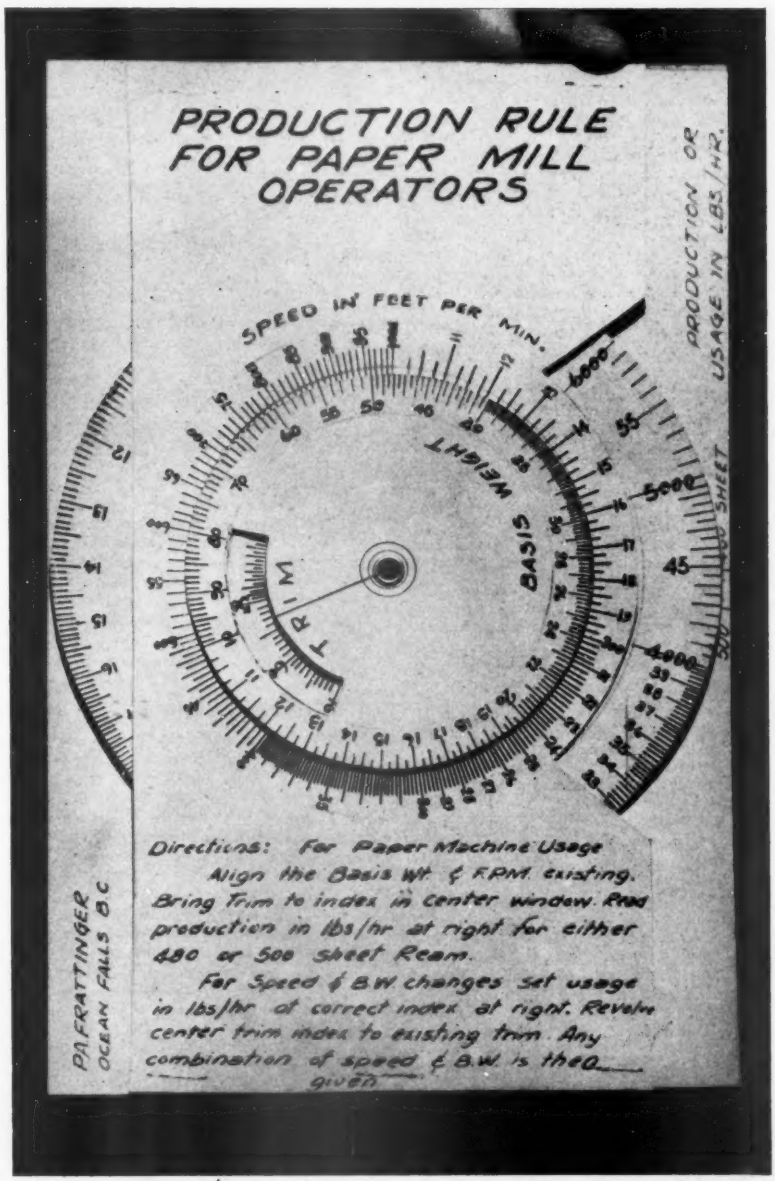
Many new items are listed in this book but of particular interest—

A more complete line of ball bearing and roller bearing anti-friction pillow blocks;

A complete line of twin disc friction clutches;

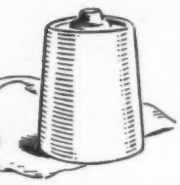
Welded steel conveyor pulleys;

A new ball bearing belt conveyor troughing idler.



The Production Rule developed by PETER A. FRATTINGER of Pacific Mills, Limited, Ocean Falls, B. C.

Rayon and other CHEMICAL USES OF WOOD PULP



The War's Effect on Textiles

● From the September number of the Rayon Organon we quote the following comment on the textile situation:

"With the outbreak of war abroad, it is timely to appraise the effects of this war on textile fibre demand and prices in this country. The following comments are intended to cover the next six to twelve months and they presuppose the continuation of a foreign war over that period.

"The present textile situation is quite different from that of 1914 in many respects. For example, rayon is a major fiber in the American textile industry today, whereas this fiber was only in the initial stages of commercial development at the beginning of the World War. Another important difference is that the present level and tone of the textile market is much higher than it was in mid-1914.

"**WOOL.** In 1938, only 11 per cent of the apparel-class wool was imported, but all of the carpet-class wools consumed here were imported. Our imported wool comes mainly from Australia and New Zealand, and this available supply now will be greatly reduced due to a greater demand from Britain.

"Higher wool prices are expected. There should be a substantial increase in the use of rayon staple fiber (all processes) in wool-type products, both alone and in mixture with wool. The entire range of wool-type products would be affected here, including the principal items of men's and women's apparel, blankets, and rugs.

"**SILK.** With a more or less small or fixed supply of silk available, the demand for silk for war products such as parachutes and powder bags will substantially increase. No serious interference with the transportation of silk from Japan is anticipated.

"Rayon filament yarn (both the regular and the strong type) may be expected to take over even more of the already-small silk weaving market, both for women's underwear and dresses. Rayon will make further inroads in the women's full-fashioned hosiery field. Subsequently, such newly developed fibers as nylon and vinyon will be available in commercial quantities to replace silk. At least for the near term, silk prices should move higher.

"**COTTON.** The supply of cotton is very large and is adequate for all domestic and export needs for some time to come. Cotton prices should be strong, but are not expected to advance materially.

"**RAYON.** Rayon staple fiber is being consumed here today at an annual rate of about 100,000,000 pounds, of which something less than half is being imported, chiefly from Great Britain. By early 1940, the domestic industry will be able to produce rayon staple at an annual rate of about 75,000,000 pounds. Some imports from Great Britain, France and Japan, and possibly from Italy, could still be obtained. Demand will increase substantially, not only for present outlets, but also as a wool substitute. Prices should be strong to higher.

"Rayon filament yarn demand will come not only from present well-defined sources, but also (a) from a further displacement of silk in weaving and hosiery; (b) from new markets such as tire cords and shirtings; (c) from some reversion of rayon staple fiber business back to the filament yarn in the apparel field especially, and (d) from some potential increase in export business to Central and South American countries especially. Including Mexico and Cuba, the total imports of rayon yarn by Central and South American countries in 1938 approximated 25,000,000 pounds of which the United States supplied only about 1,100,000 pounds, or 4 per cent. It is anticipated that the prices of rayon filament yarn will move higher.

"Aside from these demand factors which should result in strong rayon filament yarn and staple fiber prices, there is the additional stimulus of probably-increasing raw material and manufacturing costs. In the raw material end, the prices of cotton linters and dissolving wood pulp, as well as the various chemicals, are of primary importance."

War May Delay Vancouver Rayon Yarn Plant

● War conditions will probably delay construction of the $3,000,000 rayon yarn plant planned for Vancouver by a syndicate of European capitalists and manufacturers to be known as Vancouver Rayon, Ltd.

Representatives of the company in Vancouver say that progress is still being made and that it is hoped to proceed with building of the plant before long, but Paul Zeust, general manager, is now in Europe arranging for final details of financing and choosing of the personnel of his technical staff, and serious difficulty in completing these preliminaries seems inevitable.

Following the German acquisition of Czechoslovakia and even before that when Austria was being incorporated into the Reich "exile capital" from Europe was anxious to find a foothold in this country, and several manufacturing companies financed entirely by Europeans previously resident in newly acquired German lands have already been established in British Columbia, notably Alaska Pine Company and Pacific Veneer Company, both at New Westminster. These plants are now in operation, having completed their financing months ago.

Vancouver Rayon, Ltd., however, is in a somewhat different category. While the company took over ground on the north shore of Burrard Inlet formerly occupied by Capilano Mills and started construction in a small way of a testing plant, ground has yet to be broken for the main yarn mill, and the current uncertainty throughout the world as a result of the war has so unsettled the financial situation everywhere that the immediate prospects are anything but favorable.

If the war is terminated within a reasonably short period, the company will probably have its key men ready and all plans prepared for an early start. Cecil Killam, Vancouver director, says that he has had no word from Mr. Zuest indicating suspension in plans.

Rayonier Shipping Pulp to Japan

● During the current quarter which ends October 31st, Rayonier Incorporated will ship approximately 13,000 tons of dissolving pulps to Japan the company announced late in August. This tonnage compares with about 3,800 tons shipped in the preceding quarter.

This increase will partially reflect a change in shipping schedules affecting orders placed in June for 16,800 short tons of dissolving pulps. The original shipping instructions called for delivery of the pulp over the remainder of the calendar year. Since then the company has received instructions to accelerate shipments so that the entire remaining tonnage will go forward by October 31st.

Pulp Exports in July Exceed June's

● Exports of wood pulp from the United States in July amounted to 11,030 short tons worth $569,652 as compared with 10,533 short tons worth $496,941 in June and 7,362 short tons valued at $319,075 in July of 1938.

The July exports brought the total tonnage for the first seven months of the year to 50,516 short tons and the value to $2,313,651 as compared with a seven months' total exports in 1938 of 78,790 short tons worth $5,192,321.

July wood pulp exports from the United States consisted of 6,251 short tons of rayon and special chemical grades with a declared value of $403,855; 2,091 short tons of other bleached sulphite valued at $76,282; 1,736 short tons of unbleached sulphite valued at $48,556; 453 short tons of soda pulp worth $21,334; 11 tons of unbleached sulphate pulp valued at $426, and 488 short tons of other pulps of a value of $19,199.

Rau Vacations in Alaska

● Irving T. Rau, secretary-treasurer of the St. Helens Pulp and Paper Co., together with his wife and daughter, went to Alaska on a vacation trip during August. They sailed from Seattle on the "Baranof." Their trip took them as far as Seward, after which they took the train to Anchorage. The Rau family was gone for two weeks. Mr. Rau says that the trip was most interesting and that the major excitement occurred when they ran into a storm on the Gulf of Alaska.

HOW'D YOU LIKE TO PACIFY A THREE-STORY GIANT?

DOWN at the West Virginia Pulp and Paper Manufacturing Company's plant in North Charleston, S. C., there's a giant Fourdrinier Kraft Liner Board Machine.

This giant machine—*high as a three-story house and as long as a city block*—has a dryer section consisting of 80 sixty-inch dryer rolls. There are over 1000 bearings lubricated by oil applied through a pressure circulating system.

Since this machine was installed—in May, 1937—a Shell lubricant has been used to protect these bearings. In two years' time not a bearing has been lost—not a shutdown has been necessary. And the West Virginia Pulp and Paper Co. has found that a minimum amount of make-up was needed. This has saved it both time and money.

That's how Shell was able to pacify *this* giant . . . to keep it in top running trim for over two years.

Shell is prepared to do outstanding jobs in other plants, too. A staff of engineers is at your service whenever a lubrication problem exists. Call in your nearest Shell representative today.

SHELL

SHELL
PAPER MILL
LUBRICANTS

Modern Methods for Producing Better Paper and Board Rolls

by H. E. OVERACKER*

BEFORE the development of modern high speed continuous web paper converting machinery, scarcely anyone in the paper and board industry ever gave a thought to the subject of rolls and roll-winding. Today, with the trend in the paper and board converting industry more than ever toward the use of rolls, that happy state of innocence is forever gone. Paper and board men now give many an anxious hour of thought to the subject. Roll quality is considered as important as paper quality itself. The modern converting machine's need for quality rolls has seen to that.

Unfortunately, in many instances, this change in the general attitude toward rolls has not been accompanied by a corresponding change in the attitude toward roll-winding. Paper and board men who would not hesitate for a moment to scrap an outworn method or machine in any of the steps along the path of paper and board production itself, are slow to adopt modern methods and equipment when it comes to the final step on that path—the winding of rolls. They want quality rolls, of course, because their customers demand them, but it has apparently never occurred to them to go back to basic principles in their efforts to achieve roll quality.

Thus we find not a few paper and board mills in which the most modern and efficient machinery for the actual making of paper and board is paired with old-fashioned and inefficient machinery for the production of rolls. Necessarily, in such plants, the production of quality rolls is more or less haphazard. With the best of luck and skill, an experienced and conscientious operator can produce rolls which will pass muster in converting plants. For the most part, however, roll quality suffers and the rolls produced on such machines, even by the best operators, are defective in one way or another. Quality rolls can be produced consistently and at minimum cost only with modern methods and machines.

And just what are "modern" methods in roll-winding? And what is a "modern" roll-winder? Not necessarily a new machine, by any means, since there are dozens of fairly new roll-winders which are not modern, in the sense that they still employ the same methods used back in the days before anyone gave a hang about roll quality. Before we consider this question further, however, it may be well to consider briefly what standards of roll quality are required by present-day paper and board mills. Knowing the results to be achieved, we will be in a better position to judge what "modern" is, in speaking of roll-winders. "Modern," after all, is not any too definite in its meaning. If we use it to describe the best—that is, the quickest, cheapest, and most consistently successful—method or machine for solving a certain specific problem and achieving certain results, we shall probably be using it about as rigorously as most descriptive words can be used.

● The results, then, at which a modern roll-winder must aim, are the following:*

1. The finished roll must be perfectly cylindrical—that is, the density must be the same from end to end.

2. It must be perfectly straight on the ends—that is, it must not be telescoped, even slightly, and it must be slit cleanly and separated completely at the slit, with no cracks at the edge and no overlap.

3. It must be evenly wound from core to surface—that is, an inch of roll taken at any distance from the core must contain the same number of plies of paper.

4. It must be tightly wound, to prevent a loose core, or telescoping of the roll.

5. It must be free from welts and wrinkles—that is, the tension on the web within the roll must be constant, from edge to edge and from core to surface.

Apart from these basic characteristics, the roll must be able to "take it" in shipping, storing, and handling, so that the roll finally put on the converting machine is in the same condition as the roll which was taken off the winder. This ability, however, will almost necessarily be possessed by any roll which possesses all five of the characteristics outlined above. The same applies to the condition that the roll contain a maximum weight of paper or board for a given diameter.

These, then, are the specifications which a paper or board roll must meet in the converting industry today. The question now is, what methods of roll-winding will best achieve these results? That is, what methods of roll-winding are "modern"? Let us consider each of the above points in turn:

1. The roll must be cylindrical—

● To attain this result, which necessitates preserving constant density from end to end of the roll, with no soft spots, two main conditions must be fulfilled. The first of these is that the tension on the web from edge to edge must be the same, without excessive pull at any point. The second is that the pressure on the roll from end to end must be the same. Both of these conditions depend for the most part on the structural design of the machine and on the precision built into it by its maker. Thus, as one factor of vital importance, all of the rollers and drums over which the web passes must be perfectly parallel to each other and perfectly cylindrical as well. If a riding roller is used to control the pressure on the roll, means must be provided for keeping it at all times parallel to the drums and rollers, so that the rewind shaft itself will be parallel.

2. The ends of the roll must be straight—

● To achieve this, the slitting of the roll must be done cleanly and the slit edges must be separated completely to prevent overlapping. At the same time, to fulfill the conditions of point 1 above, the separation must be achieved without drawing the slit sections out of parallel with each other, which would give uneven winding. To give perfect results in slitting, no better method has yet been devised, except for certain special-purpose applications, than the score-cut method, since this method slits the web and separates the slit sections at the same time. This is done by employing a semi-sharp slitter wheel working on the web under pressure against a flint-hard polished roll over which the web is drawn. Roll, slitter, and web all move at the same speed—the roll and cutter, indeed, being moved by the web alone—so that the slitter actually slits out a path through the web and guarantees separation without any relative lateral motion of the web at all.

3. The roll must be evenly wound—

● Basically most important of the factors making for this desirable result is the use of surface winding in place of center winding. In the most recent surface-wind machines, two drums revolve the rewind roll, which rests in the "valley" between them. It is to be noted at this point that the use of the score-cut method of slitting makes possible the use of relatively lower tension in the web than with any other slitting method. Thus, there is no necessity for excessive pressure of the web on the drums, and the even winding is not disturbed by "grabbing" of the web or by slipping, such as often happens when high tensions are used.

The use of the surface-wind method of winding, even in conjunction with the score-cut method of slitting, does not by any means solve the entire problem of even winding, however, although stress and strain due to excessive tension on the web is reduced, which is the indispensable basis of even winding. Another factor which must be taken into account, one which is mentioned above in another connection, is the pressure on the roll, since in surface winding the weight of the roll resting on the drums builds upon continuously and tends to increase the pressure as the roll grows. If no compensation were made for this, the roll would start out at maximum softness at the core and proceed to maximum hardness at the surface. To insure even winding from core to surface, it is necessary to use a riding roller on top of the roll being wound, so that from the start the roll is under the desired pressure. To compensate for the growing weight of the roll, the riding roller must be equipped with means for continuously lessening its pressure on the roll being wound.

A very simple automatic device has been worked out which does just this. In

*Advertising Manager, Cameron Machine Company, Brooklyn, N. Y.

this device, the riding roller is suspended from the frame by link belts which fasten at each end and travel up over large gears at each end of the frame. Counter weights are fastened to these link belts in such a way as to run over the gear with the belts as the riding roller rises. As the rewind roll grows in size and pushes the riding roller up, the counterweights run over the gear, exerting an upward pull on the riding roller to reduce its pressure on the rewinding roll. By a simple adjustment of counterweights, any degree of hardness can be obtained and held constant throughout the run. In some cases it may be found necessary to counterweight the rewind shaft itself in a similar manner, so that the total weight of the roll will never rest on the drums.

A last important factor in even winding, of course, is constant web tension. Formerly controllable only through manually operated devices, web tension can now be controlled automatically. A constant web tension device has been perfected which employs a "floating" idler roll attached to counterweights and to levers which actuate a mill roll brake. The degree of tension on the web is thus made to control itself within limits which can be adjusted by altering the counterweighting of the system, and any desired tension can be attained by a simple adjustment of the counterweighting.

4. The roll must be tightly wound—

• This condition, of course, is controlled by web tension and by riding roller pressure, so that the remarks made under those two heads apply here as well. The particular degree of tightness to maintain is a matter which depends on the particular stock being wound. The maximum tightness compatible with paper or board strength is desirable, however, since a maximum weight and length of stock can thus be wound in a given roll diameter.

5. The roll must be free of welts and wrinkles—

• Considering that welts and wrinkles are caused primarily by uneven web tension or by distortion of the web laterally in slitting or separating, the remarks made under those heads apply here as well. One point may be added, however, and that is that undue tension on the web is to be avoided and provision should be made to level out the web just before it is wound into the roll. A good way to eliminate the chance of welts and wrinkles occurring is to cut spiral grooves in the front rewind drum. These will have a tendency to smooth the paper laterally without distorting it in any way, so that it is truly level as it goes into the roll.

These, then, are some of the more important features of modern roll-winding methods. Summing up our discussion of the question and at the same time answering directly the question we asked before: What is a modern roll winder?—

A winder, to be really modern, must possess the following features:

A. Surface winding, with the rewind roll resting in the "valley" between two drums.

B. Riding roller, suitably equipped to counter-balance the growing weight of the rewind roll and to be held parallel to the rewind drums.

C. Score-cut slitting method.

D. Spirally grooved front drum.

E. Constant web tension control, preferably automatic.

F. Means for reducing pressure of rewound roll on drums as it grows in size and weight.

*See also: What the Consumer Looks for In Paper and Board Rolls.

Rayonier First Quarter Earnings Improve

Net profit for first quarter of fiscal year of $217,516 as compared with a net loss of $283,264 in the same quarter of 1938.

• The report of Rayonier Incorporated for the first quarter of the company's fiscal year, April 30th to July 31st, showed a marked improvement in sales and profit reflecting improved conditions in the domestic rayon industry.

Total sales of dissolving pulp in the three months ended July 31 were 27,622 tons, as compared with 10,232 in the like quarter of 1938. Sales to domestic customers in the United States totaled 19,102 tons, an increase of 103.25% over the 9,398 tons in the corresponding quarter of the preceding fiscal year. In addition, there was a sale to Japan consummated in the first quarter totaling 3,791 tons, contrasted with an entire lack of buying from this source in the first quarter of the preceding year.

Rayonier Incorporated reports for the three months ended July 31, 1939 (first quarter of the company's fiscal year), consolidated net profit of $217,516 after all charges including depreciation, depletion, and provision for federal income tax, equivalent to 35 cents a share on 626,205 shares of $2 cumulative preferred stock outstanding. This compares with an indicated net loss of $244,784 for the preceding quarter and a net loss of $183,263 in the quarter ended July 31, 1938.

Consolidated balance sheet as of July 31, 1939, showed current assets of $5,952,411, compared with current liabilities of $1,705,049, leaving working capital of $4,274,362. Comparative figures for the like date in the preceding fiscal year are not available.

Sales of 3,791 tons to Japan during the quarter represented part of the 16,800-ton order placed in June of 1939, which was announced in the annual report for the fiscal year ended April 30, last. This leaves approximately 13,000 tons to be shipped during the remainder of the current calendar year.

Extent of improvement in the domestic as well as foreign markets for dissolving pulp and paper grade pulp is shown in the following table:

	Dissolving pulp	Paper grade	Fine paper	Total
United States:				
1939	19,102	5,996	2,947	28,045
1938	9,398	4,942	3,112	17,452
Japan:				
1939	3,791	.....	.....	3,791
1938	.....	.....	.....	.....
Other countries:				
1939	4,729	.....	1,315	6,044
1938	834	11	780	1,625
Total:				
1939	27,622	5,996	4,262	37,880
1938	10,232	4,953	3,892	19,077

Consolidated income account for Rayonier Incorporated and its wholly owned subsidiary, Georgia Timber Co., for the three months ended July 31, 1939, compares as follows:

	1939	1938
Profit from operation	$643,659	$167,821
Depletion and depreciation	287,717	287,027
Other expenses, net	95,367	64,058
Provision for federal income tax	43,059	.....
Net profit	$217,516	*$183,264

*Loss.

Sulphate Pulping of Silver Fir

Effect of Chemical Concentration and of Wood Selection on Yield and Pulp Quality

by MARK W. BRAY, J. S. MARTIN and S. L. SCHWARTZ*

Synopsis

AN investigation as to the suitability of silver fir (Abies amabilis) for the production of strong kraft and bleachable sulphate pulps has been made. The experiments reported include a study of the effect of concentration on yield and pulp quality from this species. With indirect steam heating, the lowest yield of screenings consistent with a high yield of screened pulps of maximum strength characteristics was obtained at an initial concentration of approximately 50 grams per liter of total chemicals in the cooking liquor including the moisture in the chips.

The effect of wood selection on yield and pulp quality was investigated. For the production of kraft pulps of high strength characteristics, wood taken from the upper portion of the trunk gave somewhat better pulps than that taken from the butt logs. Slabwood consisting of all sapwood gave better pulps than wood in which a greater proportion of heartwood was present.

Introduction

● This report presents the results of pulping experiments on silver fir (Abies amabilis) by the sulphate process. The experiments were made to determine the suitability of silver fir for the production of strong kraft and bleachable sulphate pulps. In this work the initial concentration of total chemicals in the cooking liquor, expressed as sodium hydroxide and sodium sulphide, was varied from 80 to 15 grams per liter in increments of 5, 10 or 20 grams, depending upon the magnitude of the value for the total. In pulping with liquors of low cencentration, additional digestions of longer duration were made when the screenings were excessive, so that pulps of approximately the same yield could be compared.

The work was also designed to show any differences in pulp quality resulting from the selection of the raw material from different parts of the tree. Previous investigations on the pulping of certain European species[2] and the southern yellow pines[3, 4] had shown that wood structure exerts a marked influence on the yield and quality of pulp obtained.

The principal digestions were made in triplicate in an autoclave of 3.7 gallons capacity. Additional digestions were made in a 13-cubic foot digester in which were suspended four perforated steel baskets containing chips from different parts of the tree for pulping simultaneously. Thus pulps prepared under identical conditions were obtained for comparison. After determination of the yield of pulp and consumption of cooking chemicals on the individual digestions, the identical autoclave, or basket-cooked pulps were thoroughly mixed in water suspension, pressed to a dryness of approximately 35 per cent, and stored in covered cans until used for physical, chemical and bleach requirement tests.

*Forest Products Laboratory, Forest Service, U. S. Department of Agriculture. Maintained at Madison, Wisconsin, in cooperation with the University of Wisconsin.

Material

Selection and Evaluation

● The silver fir was obtained by the Pacific Northwest Forest Experiment Station. It was collected from a virgin area of fairly dense crown cover in Skamania County, Washington. The wood used consisted of about three cords made up of one hundred and six 4-foot bolts cut from seven trees (pl. 1). The wood was received at the Forest Products Laboratory in October, 1934, and stored in the open in cross piles until April, 1935, when it was evaluated[5] according to the methods[6] adopted as standard at the Forest Products Laboratory (tables 1, 2, 3).

For the pulping experiments the wood was segregated into top, middle and butt logs. Additional digestions were made on slabwood, consisting of sapwood, and on log centers, consisting of heartwood. These portions of the tree were pulped separately to determine the effect of position in the tree on yield and pulp quality.

Pulping Experiments

Preparation of Material

● The logs and sections thereof taken from different parts of the tree were separately chipped in a two-knife chipper running at approximately 500 r.p.m. and set to produce a ⅜-inch chip. The chips were screened on a shaker screen, where the over and under-sized material and sawdust were rejected.

Method of Testing the Pulps

● The strength properties of the pulps were determined on test sheets prepared after processing 90-gram (oven-dry basis) portions for definite intervals in a pebble mill. In addition the pulps were tested for their bleach requirement. The color of the bleached samples was determined by comparison with a standard white magnesia block using an Ives tint photometer. Samples of the unbleached pulps were analyzed for their cellulose, alpha-cellulose, lignin and pentosan contents according to standard T. A. P. P. I. methods.

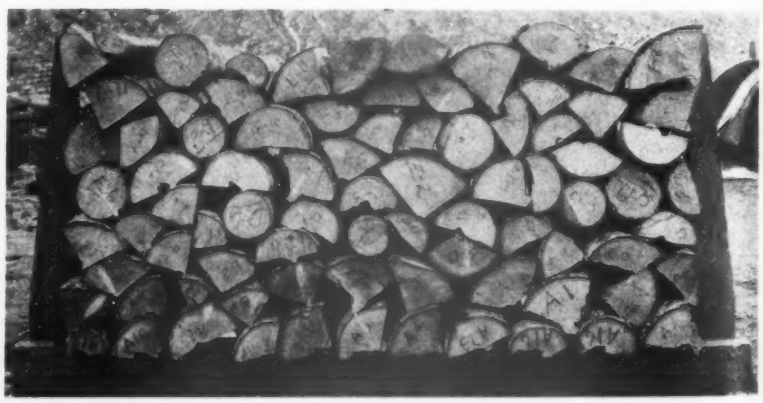
Pulping Procedure

● A total of 59 autoclave, eight 50-pound scale, and four basket digestions were made by the sulphate process and certain modifications thereof. Thirty-eight of the autoclave digestions were made to study the effect of cencentration of chemicals on yield and pulp quality. These digestions were made on a mixture of chips from all parts of the tree. The others, including the 50-pound scale and basket cooks, were made on wood selected from definite locations in the tree to determine the effect of specific wood properties on yield and pulp quality. In this phase of the investigation, both strong kraft and pulps of easy-bleaching characteristics were made. During the charging operation, samples of the screened chips were taken at random for moisture determinations. All calculations of chemicals and yield are based on the weight of oven-dry chips charged.

Bleach consumption and the results of chemical analysis, on the other hand, are calculated on the weight of oven-dry pulp tested. In calculating the concentration of chemicals and the volume of the cooking liquors added, cognizance was taken of the moisture in the chips and the values reported, therefore, include this water. The maximum digestion temperature for all digestions was 170 degrees C., allowing 1½ hours to attain this figure. While the duration at maximum temperature was maintained constant for all digestions of a given series, it was varied where a change in the degree of delignification was desired. The results obtained from the several series of pulping experiments are recorded in tables 4, 5 and 6.

Effect of Chemical Concentration on Yield and Pulp Quality

● In this series of digestions the total initial concentration of chemicals in the cooking liquors was decreased from 80



Sample cord of silver fir pulpwood from Skamania County, Washington, employed in the sulphate pulping experiments described in the accompanying article.

to 15 grams per liter in 5, 10 or 20-gram increments depending upon the value of the total. The temperature-pressure increase period was in all cases 1½ hours. Druation at maximum temperature (170 degrees C.) was 1½ hours except for the lower concentrations, when the rate of digestion was proportionately decreased resulting in exceedingly raw pulps for so short a digestion period. In such cases the cooking time was lengthened to as much as 7½ hours, so as to produce pulps in yields approximately equal to those made with the more concentrated liquors.

In pulping for a given time (1½ hours, for example), as the total concentration is decreased from 80 to 20 grams per liter, the total yield of pulp increases and the percentage of screenings appears to pass through a minimum value at the concentration of approximately 50 grams per liter. The yield of screened pulp, however, reaches its highest point at concentrations of total chemicals ranging from 50 to 30 grams per liter.

The bursting and tensile strengths, the resistance to tear, and the folding endurance of the pebble-milled pulps also increase to a maximum at this particular concentration of total chemicals and show a decrease as this pulping variable is further decreased. In addition, the bleach requirement indicates a minimum at this point followed by a marked increase with further decrease in chemical concentrations. The cellulose and alpha-cellulose content of the pulps also show a maximum at the concentration of 50 grams per liter. Since the most favorable results were obtained at this concentration, these cooking conditions were employed in further studying the effects of growth variables on yield and pulp quality relative to the production

Table 1.—Physical characteristics of the silver fir pulpwood

Weight of cord: (Basis 4-ft., unbarked split and whole logs, 128 cu. ft. gross volume)—		
Unbarked, as received	3938	pounds
Barked, as received	3310	pounds
Barked, oven-dry (Wt. barked x percentage nonvolatile)	1760	pounds
(Solid vol. x density)	1875	pounds
Solid volume of wood in cords received	79	cu. ft.
Composition of the cord—		
Logs split into quarters	12	
Logs split into thirds	1	
Logs split into halves	12	
Unsplit logs	8	
Total number of logs in cord	33	
Total number of pieces in cord	83	
Straightness (basis number logs in cord)—		
Nearly straight, less than a deviation of 0.5 inch	100.0	percent
Logs with large protruding knots or bumps (Basis total in cord)	0	percent
Knots, average number per log (Basis sample logs)—		
Small	9.5	
Medium	3.2	
Large	0.05	
Loss through barking—		
In weight (Basis unbarked logs, as received)	15.9	percent
(Basis unbarked discs, oven-dry)	14.2	percent
In solid-volume (Basis unbarked discs as received)	12.0	percent
Specific gravity—		
(Basic discs, oven-dry weight, green volume)	0.380	
(Basic discs, oven-dry weight, oven-dry volume)	0.436	
Density—		
(Basic discs, oven-dry weight per cu. ft. green volume)	23.8	
Nonvolatile at 105° C. (Basis discs as received)—		
Unbarked	53.2	percent
Barked	53.2	percent
Bark	54.1	percent
Diameter: of barked logs, maximum	18.5	inches
minimum	4.7	inches
average	10.2	inches
Of discs, average	9.9	inches
Of heartwood in logs, maximum	12.0	inches
minimum	2.0	inches
average	7.4	inches
Proportion of heartwood to total wood, by volume (Basis discs)	55.4	percent
Age (Average of discs)	104	years
Rate of growth (Basis discs) average per inch	20.8	rings
Logs containing heart rot (Basis total in cord)	0	percent

Table 3.--Physical characteristics of silver fir pulpwood; samples taken from different locations in the tree

(Shipment 1430)

Tree designation	Number logs in tree	Log No.[1]	Number pieces in log	Dryness[2] of log	Average diameter of log[3]	Specific gravity[2] (O.D. weight /A.D. volume)	Age of log[3]	Growth rate[2]	Heartwood by volume[3]	Knots[4] Small	Knots[4] Medium	Knots[4] Large	Color of wood -- Ives readings: Heartwood Red	Heartwood Green	Heartwood Blue	Sapwood Red	Sapwood Green	Sapwood Blue
				Percent	Inches		Years	Rings per inch	Percent	No. per log			Parts			Parts		
A	19	2	4	57.8	14.5	0.400	163	22	61	3	0	0	64	51	40	69	56	45
		11	3	53.7	11.4	.369	96	17	63	5	8	0	66	52	44	73	60	51
		18	2	47.8	6.8	.367	52	15	35	14	9	0	69	57	47	75	62	54
B	20	1	4	63.0	13.2	.407	184	28	69	3	1	0	61	46	38	63	48	38
		10	4	62.7	11.3	.350	118	21	83	13	3	0	64	48	41	67	53	44
		19	2	53.2	6.2	.379	46	15	53	25	12	0	67	54	43	68	53	45
C	13	1	2	63.1	9.1	.466	170	38	67	0	0	0	64	47	37			
		7	2	58.2	8.7	.377	108	25	63	10	0	0	65	51	41	68	52	42
		13	1	40.5	5.9	.358	52	18	64	14	5	0	68	56	46	66	52	42
D	6	2	2	63.9	8.4	.395	157	37	70	2	0	0	67	53	44			
		5	1	55.0	7.4	.370	125	34	64	10	3	0	64	51	42			
E	24	1	4	53.9	18.9	.357	216	23	54	4	0	0	66	48	40	64	48	38
		12	4	50.2	14.7	.304	75	10	62	8	1	1	64	49	42	68	55	47
		24	1	40.5	6.0	.341	29	10	34	15	13	0	67	53	44	68	53	43
F	10	2	1	48.8	8.3	.418	87	21	45	15	0	0	63	48	39	67	51	42
		5	1	40.7	7.8	.353	67	17	35	15	1	0	65	51	42	65	50	40
		10	1	36.2	5.6	.346	36	13	23	17	3	0	67	56	46	67	55	46
G	14	2	4	64.0	13.0	.441	129	20	57	3	0	0	62	46	37	63	48	37
		8	2	57.5	11.8	.427	100	17	52	8	0	0	65	48	39	71	58	47
		14	2	52.8	10.0	.378	72	14	55	5	5	0	65	50	40	70	56	46
Average				53.2	9.9	0.380	104	21	55	9.5	3.2	0.05	65	51	42	68	54	44

[1] The number designates the position of the log with reference to the butt. The logs selected from each tree were either the first or second log from the top and bottom, and approximately the middle log.

[2] Nonvolatile matter at 105° C. as determined from sample disc.

[3] As determined from sample disc cut from middle of log.

[4] Small knots, 1 inch in diameter or less; medium, 1 to 2 inches; large, more than 2 inches

of strong kraft pulps from this species. Since all the digestions were effected with indirect steam heating the concentration of 50-grams per liter is not low. In fact, this value approximates mill operation. Of course, for the production of bleachable sulphate pulps where greater amounts of chemicals are required this low concentration might not be economically feasible. Hence, with the larger volumes of liquor employed in making the bleachable sulphate pulps the initial concentration of total chemicals, expressed as NaCH and Na_2S, was increased to 60 and 70 grams per liter (table 6).

Pulping for longer periods at the lower concentrations in order to obtain yields equal to those made at the higher concentrations resulted in pulps of somewhat lower strength characteristics and higher bleach requirements.

Effect of Wood Selection on Yield and Quality of Kraft Pulps

• For investigating the effect of wood selection from different parts of the tree, all the kraft digestions were made under the same conditions, namely, those resulting in the best pulps from the just described study of chemical concentration. Top and butt logs, slabwood consisting entirely of sapwood, and center portions, consisting of heartwood, were pulped separately. The results of these experiments are reported in table 5.

As shown in table 3, logs taken from the upper portions of the tree are lower in density, have a more rapid growth rate, and contain a lower percentage of heartwood. In addition, from measurements made on other species, notably the southern yellow pines[6], the percentage of springwood, which varies inversely with the density, increases with distance above the stump. Unfortunately accurate measurements on the proportion of this type of wood growth were not made on the identical logs under consideration.

The data in table 5 indicate that the highest yield of pulp was obtained from logs taken from the upper portion of

Table 2—Chemical analysis and weight of unit volume of chips of the silver fir pulpwood

Cellulose	62.1 percent
Alpha cellulose	44.2 percent
Lignin	26.6 percent
Total pentosans	10.5 percent
Solubility in:	
Hot 1 percent sodium hydroxide solution	9.1 percent
Hot water	2.0 percent
Alcohol-benzene	2.0 percent
Ether	0.3 percent
Hydrolysis number	18.9
Size of chips	⅝-inch
Weight per cubic foot of wet chips	12.6 pounds
Nonvolatile at 105° C.	65.0 pounds
Weight of oven-dry wood per cubic foot of wet chips	8.2 pounds

Table 4.--Pulping data and properties of silver fir sulphate pulps. Effect of chemical concentration on yield and pulp quality.

Cooking[1] and yield data (Wood charged; Chemicals added; Chemicals consumed; Black liquor analysis; Yield)

Digestion designation (No.)	Wood charged: Moisture (Percent)	Weight: Moist (Pounds)	Weight: Oven-dry (Pounds)	Added concentration: NaOH (Grams per liter)	Na_2S (Grams per liter)	Total (Grams per liter)	Total effective alkali as NaOH (Grams per liter)	Volume per 100 pounds of wood (Gallons)	Wood liquor ratio	Consumed: Ratio of combined to total alkali (Percent)	On oven-dry wood charged (Percent)	Total effective alkali as NaOH (Percent)	Black liquor: Density at 15° C. (°Bé.)	Total solids (Percent)	Heat value (B.T.U. per pound)	Duration at maximum temperature 170° C. (Hours)	Screened pulp (Percent)	Screenings (Percent)	Total (Percent)
344	23.2	5.21	4.00	53.30	26.70	80.0	67.0	30.0	2.5	87.2	17.4	14.6	14.8	......	......	1.5	48.8	1.3	50.1
345										87.8	17.6	14.7	14.6				48.4	2.0	50.4
346										87.8	17.6	14.7	14.5				49.3	1.4	50.7
Average										87.6	17.5	14.7	14.6				48.8	1.6	50.4
347	22.0	5.13	4.00	40.00	20.00	60.0	50.3	40.0	3.3	86.5	17.3	14.5	11.8	......	......	1.5	49.1	1.3	50.4
348										86.9	17.4	14.6	11.6				50.8	1.2	52.0
349										86.5	17.3	14.5	11.6				50.8	.4	51.2
Average										86.6	17.3	14.5	11.7				50.2	1.0	51.2
381	17.8	4.86	4.00	33.33	16.67	50.0	41.9	48.0	4.0	87.6	17.5	14.7	10.1	15.1	6887	1.5	50.9	.4	51.3
382										88.1	17.6	14.8	10.2				51.0	.5	51.5
383										87.6	17.5	14.7	10.1				51.0	.4	51.4
Average										87.8	17.5	14.7	10.1				51.0	.4	51.4
350	23.2	5.21	4.00	26.67	13.33	40.0	33.5	60.0	5.0	84.5	16.9	14.2	8.1	......	......	1.5	51.4	.9	52.3
355										85.6	17.1	14.4	8.4				49.9	1.2	51.1
356										85.1	17.0	14.3	8.4				50.8	1.5	52.3
Average										85.1	17.0	14.3	8.3				50.7	1.2	51.9
376	16.9	3.61	3.00	20.00	10.00	30.0	25.1	80.0	6.7	85.7	17.1	14.4	6.3	9.3	6584	1.5	52.0	2.4	54.4
389	16.8	3.61								85.7	17.1	14.4	6.4				53.4	2.3	55.7
390	17.8	3.65								87.3	17.5	14.6	6.4				50.3	6.1	56.4
Average										86.2	17.2	14.5	6.4				51.9	3.6	55.5
351	23.2	3.91	3.00	20.00	10.00	30.0	25.1	80.0	6.7	88.9	17.8	14.9	6.3	......	......	2.5	51.1	1.4	52.5
361										85.6	17.1	14.3	6.4				51.3	1.1	52.4
362										85.6	17.1	14.3	6.3				51.2	1.8	53.0
Average										87.4	17.3	14.5	6.3				51.2	1.4	52.6
387	16.8	3.39	2.75	16.66	8.34	25.0	20.9	96.0	8.0	84.6	16.9	14.2	5.5	7.7	6440	1.5	53.2	6.3	59.5
388										84.6	16.9	14.2	5.4				46.1	11.3	57.4
Average										84.6	16.9	14.2	5.5				48.2	8.8	57.0
371	25.0	3.97	2.75	16.66	8.34	25.0	20.9	96.0	8.0	90.4	18.1	15.2	5.4	8.1	6590	3.5	51.6	1.3	52.9
374	16.9	3.39								88.5	17.7	14.8	5.5				50.4	1.2	51.6
375										88.5	17.7	14.8	5.5				51.1	1.3	52.4
Average										89.1	17.8	14.9	5.5				51.0	1.3	52.3
370	23.0	3.25	2.50	13.33	6.67	20.0	16.8	120.0	10.0	88.1	17.6	14.8	4.3	......	......	1.5	55.1	44.4	99.5
367	16.1	2.98	2.50	13.33	6.67	20.0	16.8	120.0	10.0	88.1	17.6	14.8	4.5	......	......	4.0	50.3	2.5	52.8
372	21.4	3.18								88.1	17.6	14.8	4.3				49.9	2.6	52.5
373										88.1	17.6	14.8	4.5				49.9	2.5	52.4
Average										88.1	17.6	14.8	4.4				50.0	2.5	52.5
363	23.2	3.25	2.50	13.33	6.67	20.0	16.8	120.0	10.0	88.0	17.6	14.8	4.5	......	......	5.0	50.9	1.7	52.6
364	23.0	3.25								91.6	18.3	15.4	4.5				49.7	3.2	52.9
360	16.1	2.98								89.3	17.9	15.0	4.5				49.8	2.2	52.0
377	21.4	3.18								89.3	17.9	15.0	4.3				50.3	2.0	52.3
Average										89.6	17.9	15.0	4.5				50.2	2.3	52.5
397	23.1	3.25	2.50	13.33	6.67	20.0	16.8	120.0	10.0	90.4	18.1	15.2	4.6	......	......	6.0	47.9	2.2	50.1
378	18.3	2.33	1.90	10.00	5.00	15.0	12.6	160.0	13.3	90.4	18.1	15.2	3.4	6.8	6506	6.0	50.0	2.8	52.8
384	15.9	2.26								88.8	17.8	14.9	3.4				49.5	4.1	53.6
395										90.4	18.1	15.2	3.4				50.0	3.7	53.7
Average										89.9	18.0	15.1	3.4				49.8	3.5	53.3
379	18.3	2.33	1.90	10.00	5.00	15.0	12.6	160.0	13.3	92.0	18.4	15.4	3.4	5.0	6912	7.5	51.4	2.4	53.8
385										92.0	18.4	15.4	3.4				50.6	3.2	53.8
386	15.9	2.26								92.0	18.4	15.4	3.4				51.6	1.9	53.5
Average										92.0	18.4	15.4	3.4				51.2	2.5	53.7

Pebble mill strength data on unbleached pulps (tests made at 72 deg. F. and 65 percent relative humidity); Bleaching data[2]; Chemical analysis[2]

Digestion designation (No.)	Time in pebble mill (Min.)	Freeness (Schopper) (Cc.)	Ream weight (25" x 40" - 500) (Pounds)	Burst factor (Per pound per ream)	Tear factor (Per pound per ream)	Folding endurance (Double)	Tensile strength (Pounds per sq. in.)	Solid fraction (Ratio)	Stretch (Percent)	Standard bleach powder added (Percent)	Lovibond: Red (Parts)	Green (Parts)	Blue (Parts)	Cellulose: Total (Percent)	Alpha (Percent)	Lignin (Percent)	Total pentosans (Percent)	Viscosity (Centipoises)	Potassium permanganate number (Cc.)
344, 345, 346	80	837	55.1	0.78	2.8	1086	3637	0.39	6.7	0	33	24	20	91.7	75.1	4.6	8.7	74.8	20.9
	100	825	55.4	.86	2.4	1267	4626	.42	6.7	25	70	57	46	......	......	......	......	......	......
	120	818	56.1	.92	2.2	1268	4877	.43	6.7										
	160	517	56.9	.96	1.7	1469	5923	.49	7.9										
	200	307	57.5	.92	1.5	1059	6320	.57	7.9										
347, 348, 349	40	860	53.2	.79	2.8	1607	2783	.39	6.1	0	38	27	21	91.4	75.8	4.8	8.1	85.4	20.9
	80	850	54.7	.98	2.3	1723	5070	.43	6.8	25	73	60	47	......	......	......	......	......	......
	120	835	55.9	.92	2.2	1099	5080	.43	6.9										
	140	782	54.5	1.01	2.1	1505	5815	.47	7.5										
	160	420	56.7	1.04	1.6	1397	6150	.52	8.4										
	200	295	58.3	.95	1.4	1321	6220	.56	7.4										
381, 382, 383	40	860	57.9	.69	3.4	711	2865	.32	9.4	0	29	30	25	91.8	76.4	5.5	7.9	94.7	21.9
	80	845	61.4	.82	2.9	990	3481	.38	9.5	25	70	60	49	......	......	......	......	......	......
	120	660	59.1	1.07	2.2	2552	5480	.46	9.4										
	140	550	61.6	1.01	2.1	2553	6330	.47	9.0										
	160	400	59.8	1.12	2.0	1333	5635	.48	9.4										
	230	280	64.1	.99	1.9	......	6250	.51	8.4										
350, 355, 356	40	865	56.3	.64	2.8	730	2670	.32	4.9	0	33	25	20	90.5	74.6	7.0	8.3	122.8	21.7
	80	860	55.9	.77	2.8	1065	3397	.36	7.3	25	62	48	36	......	......	......	......	......	......
	100	840	55.5	.90	2.6	1711	4410	.40	6.5										
	120	835	56.7	.89	2.5	1426	4630	.40	7.1										
	140	835	59.1	.88	2.4	1579	3675	.40	6.4										
	160	825	58.3	.81	2.3	1362	4182	.41	6.2										
376, 389, 390	120	865	53.9	.73	3.3	1087	3120	.33	6.9	0	34	24	18	87.4	74.4	9.8	7.3	......	......
	140	860	55.1	.76	3.0	1326	3694	.35	6.6	25	51	36	27	......	......	......	......	......	......
	160	850	55.1	.89	2.7	1016	4298	.38	7.5										
	180	835	57.1	.82	1.9	1208	4393	.38	6.9										
	200	825	58.3	.82	1.9	819	4405	.39	7.1										
	260	240	56.7	.90	1.6	1084	5760	.49	6.4										
	320	200	60.6	.79	1.3	764	5370	.53	5.5										
351, 361, 362	40	878	53.3	.68	2.7	974	2862	.35	6.0	0	33	23	19	88.4	72.8	7.4	8.6	106.7	21.9
	80	865	55.9	.80	2.4	1287	3800	.38	6.5	25	62	46	36	......	......	......	......	......	......
	120	855	52.4	.82	2.3	1190	4550	.40	6.6										
	140	845	58.3	.85	2.2	1072	4320	.42	6.3										
	160	735	55.1	.99	1.8	1624	5250	.47	7.5										
	200	450	56.3	.96	1.5	1598	6320	.49	6.9										
387, 388	140	860	57.1	.75	2.5	1124	3230	.35	6.0	0	31	21	17	80.6	68.2	11.4	7.3	......	......
	160	860	55.9	.78	2.4	1548	3510	.34	7.0	25	45	30	22	......	......	......	......	......	......
	180	860	53.9	.76	2.7	1388	3205	.33	6.8										
	200	860	55.5	.83	2.1	1092	4265	.38	6.9										
	280	785	55.1	.88	1.8	1081	5060	.42	6.6										
	320	775	60.2	.83	1.6	1270	4370	.42	6.0										
371, 374, 375	40	865	51.2	.63	3.1	446	2660	.33	5.2	0	33	23	19	88.9	74.2	7.6	7.2	76.4	22.1
	80	855	52.4	.84	2.6	1166	4030	.37	7.0	25	60	45	32	......	......	......	......	......	......
	120	765	51.6	1.05	2.5	1077	5740	.44	7.8										
	140	605	53.9	1.10	2.2	1206	5860	.46	7.1										
	160	530	53.5	1.06	2.2	1218	5900	.48	7.4										
	180	445	54.7	.96	1.8	1667	5513	.48	7.5										
	200	260	55.9	.89	1.6	1072	6200	.51	6.8										
370	160	895	57.5	.72	2.2	959	4072	.39	6.3										
367, 372, 373	40	880	53.2	.69	2.7	927	3120	.34	5.5	0	32	23	18	89.4	72.8	8.9	7.3	......	21.7
	80	865	53.5	.85	2.7	1096	4292	.38	7.0	25	56	40	30	......	......	......	......	......	......
	120	830	53.5	.96	2.4	892	5710	.42	6.8										
	140	780	55.5	.96	2.1	1087	5630	.44	7.3										
	160	695	55.7	.97	2.0	1552	5368	.47	7.2										
	200	324	55.9	.92	1.6	885	6265	.53	5.8										
363, 364, 360, 377	40	880	53.5	.63	2.6	766	2676	.32	5.8	0	30	22	17	89.2	74.2	8.1	6.9	......	22.0
	80	865	56.3	.73	2.6	934	3425	.36	6.0	25	58	41	30	......	......	......	......	......	......
	120	440	59.8	.81	2.6	1617	3785	.37	6.5										
	140	730	54.7	1.02	2.0	1109	5020	.43	7.3										
	160	809	58.5	.89	2.2	1108	4473	.41	7.0										
	200	330	55.1	.98	1.9	1382	6660	.53	6.3										
397	120	838	55.9	.89	2.4	1412	4355	.43	6.3	......	......	......	......	91.3	76.2	6.3	7.4	65.3	21.9
	140	800	55.5	.90	2.2	1856	4665	.44	7.0										
	160	609	55.9	1.02	2.0	1455	6400	.49	8.3										
	200	335	57.5	.94	1.7	1293	6135	.51	7.6										
378, 384, 395	180	850	56.7	.87	2.4	1599	4380	.39	6.1	0	30	20	16	86.9	73.4	10.0	6.5	......	......
	230	778	56.3	.88	1.7	1236	4980	.44	7.9	25	44	28	20	......	......	......	......	......	......
	280	335	58.3	.84	1.6	682	5210	.51	7.4										
	320	310	59.4	.87	1.5	1047	5730	.51	6.4										
379, 385, 386	160	890	54.7	.86	2.8	666	3670	.36	6.6	0	29	19	15	87.0	73.6	10.3	6.5	......	......
	180	845	55.5	.78	2.9	1327	3495	.35	6.5	25	46	31	22	......	......	......	......	......	......
	200	835	55.9	.82	2.6	691	3745	.37	6.3										
	280	275	58.7	.86	1.4	1017	5150	.53	4.8										
	320	160	59.1	.82	1.3	865	6345	.57	3.8										

[1] Cooking conditions: Except for changes in concentration and time of digestion as indicated, all digestions were made under the same conditions as follows--

Chemical added per hundred pounds of oven-dry wood:	Sodium hydroxide (Calculated as NaOH)	13.33 pounds	Maximum digestion temperature	170° C.
	Sodium sulphide (Calculated as Na_2S)	6.67 pounds	Temperature-pressure increase period	1.5 hours
	Total chemicals	20.00 pounds	Heating	indirect steam
	Total active alkali (Calculated as NaOH)	16.75 pounds		

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[2] Data obtained on unbeaten pulps.

the tree. A slight advantage in yield is also shown for slabwood in comparison with heartwood.

The strength data show higher bursting and tensile strengths and folding endurance, but lower resistance to tear for top logs in comparison with butt material. Slabwood produced a pulp of higher tearing strength than that obtained from the center heart-containing portion of the tree. Neither of these two latter types of wood excelled in other strength properties. There was no advantage so far as bleach requirement is concerned between the upper or lower portions of the tree. Slabwood pulps showed an advantage over heartwood pulps in bleach requirement and in pentosan removal.

In general, so far as pulp yield and strength are concerned, top logs and slabwood were somewhat superior to butt logs and heartwood as raw material for kraft pulping.

Effect of Changing Cooking Conditions on Yield and Quality of Bleachable Sulphate Pulps

● For this part of the investigation, in one instance, the initial concentration was changed from 60 to 70 grams per liter and all other cooking conditions were held constant. In a second instance the total chemicals were increased from 30 to 34.2 pounds per hundred pounds of oven-dry wood charged. Again all other conditions were maintained unchanged for the digestions in this series.

Increasing concentration from 60 to 70 grams per liter resulted in a very slight (1 per cent), but nevertheless definite, increase in yeild, a small decrease in bleach requirement, a slight increase in cellulose and alpha-cellulose content, and in bursting and tensile strengths, but a decrease in resistance to tear and in folding endurance.

Increasing the ratio of total chemical charged from 30 to 34.2 per cent resulted in a decrease in pulp yield, in bleach requirement, and in folding and tearing strength, and an increase in bursting and tensile strengths. In addition, the cellulose and alpha-cellulose contents were higher in the pulps cooked with the higher chemical ratio.

Effect of Wood Selection on Yield and Quality of Bleachable Sulphate Pulps

● For the production of bleachable sulphate pulps, where yields are lower than in kraft pulping, selection of raw material is probably not so important so far as pulp strength and bleach requirement are concerned. However, here again the upper logs and the slabwood gave the highest yield of pulp of practically equal bleachability.

Conclusions

● Silver fir (Abies amabilis) is satisfactory for the production of both strong kraft and easy-bleaching sulphate pulps.

Decreasing concentration of chemicals in the cooking liquors from 80 to 20 grams per liter resulted in a kraft pulp of maximum yield and strength properties at approximately 50 grams per liter, total initial concentration when the digester was heated with indirect steam. Cooking to equal yield by increasing the time of digestion for lower chemical concentrations did not result in pulps of equal strength and bleach requirement to those made at this particular concentration.

Proper seelction of wood is beneficial to the production of krapt pulps of highest yield and strength properties.

[2]Gustav G. Klem, Reports of the Norwegian Experiment Station, No. 17, vol. V, part 2 (1934).

[3]C. E. Curran, Paper Trade J. 103, No. 11, 37 (September 10, 1936).

[4]Bray and Curran, Paper Trade J. 105, No. 20, 39 (Nov. 11, 1937).

[5]Pew, Knechtges and Schafer. Forest Products Laboratory report L-168-7, Problem D-151 (July 19, 1935).

[6]Method No. 111, July, 1933, revision of the Forest Products Laboratory Manual of Standard Testing Methods for Wood, Pulp, Stuff and Paper.

Table 5.--Pulping data and properties of silver fir (Abies amabilis) sulphate pulps. Comparison of kraft pulps from different parts of the tree.

Wood; Cooking[1] and yield data:

Digestion designation	Location in tree	Wood: Moisture	Weight: Wet	Weight: Oven-dry	Chemicals consumed: Ratio of combined to total alkali	Chemicals consumed: On oven-dry wood	Chemicals consumed: Total active alkali as Na_2O	Black liquor: Density at 15°C.	Black liquor: Total solids	Black liquor: Heat value per pound residue	Yield: Oven-dry screened pulp	Yield: Oven-dry screenings	Yield: Total
No.		Percent	Pounds	Pounds	Percent	Percent	Percent	°Be.	Percent	B.T.U.	Percent	Percent	Percent
381	Entire tree mixture	17.8	4.86	4.0	87.6	17.5	14.7	10.1	15.1	6087	50.9	0.4	51.3
382					88.1	17.6	14.8	10.2			51.0	.5	51.5
383					87.6	17.5	14.7	10.1			51.0	.4	51.4
Average					87.8	17.5	14.7	10.1			51.0	.4	51.4
391	Top logs	18.5	4.91	4.0	89.0	17.8	14.9	10.5	15.3	6806	52.1	.7	52.8
392					89.0	17.8	14.9	10.5			52.6	.7	53.3
393					89.0	17.8	14.9	10.6			53.5	.4	53.9
Average					89.0	17.8	14.9	10.5			52.7	.6	53.3
2435-1	Top logs	19.0	113.95	92.2	80.9	16.2	13.6	10.6	......	......	47.8	.5	48.3
(Basket cooks) 2435-2	Top logs	19.0	4.82	3.9	80.9	16.2	13.6	10.6	......	......	52.5	.5	53.0
2435-3											53.0	.5	53.5
Average											52.8	.5	53.3
394	Butt logs	14.3	4.67	4.0	86.6	17.3	14.5	10.6	15.4	6784	50.3	.2	50.5
395					86.6	17.3	14.5	10.6			50.4	.2	50.6
396					86.6	17.3	14.5	10.6			50.7	.2	50.9
Average					86.6	17.3	14.5	10.6			50.5	.2	50.7
2439	Butt logs	14.0	116.30	100.0	76.6	15.3	12.8	12.4	......	......	......	......	......
397	Slabs (Sapwood)	15.7	4.75	4.0	84.3	16.9	14.1	10.2	......	......	51.0	.4	51.4
398					83.8	16.8	14.0	10.1			51.0	.4	51.4
399					83.8	16.8	14.0	10.2			51.1	.3	51.4
Average					84.0	16.8	14.0	10.2			51.0	.4	51.4
2441	Slabs (Sapwood)	16.1	119.30	100.0	83.3	16.7	14.0	9.1	......	......	50.3	.0	50.3
400	Log centers (Heartwood)	14.7	4.69	4.0	83.3	16.7	14.0	10.4	......	......	50.5	.1	50.6
401					83.3	16.7	14.0	10.4			50.2	.1	50.3
402					83.3	16.7	14.0	10.4			49.9	.2	50.1
Average					83.3	16.7	14.0	10.4			50.2	.1	50.3
2442	Log centers (Heartwood)	15.8	118.80	100.0	80.0	16.0	13.4	10.0	......	......	43.8	.1	48.9

Pebble mill strength data on unblenched pulp. Tests made at 72° F. and 65 percent relative humidity:

Digestion designation	Time of treatment	Freeness (Schopper)	Ream weight (25x40-500)	Burst factor	Tear factor	Folding endurance	Tensile strength	Solid fraction	Stretch
No.	Min.	Cc.	Pounds	Points	Points	Double folds	Lbs./sq.in.	Ratio	Percent
381–383	40	860	57.9	0.69	3.4	711	2865	0.32	9.4
	80	845	61.4	.82	2.9	950	3481	.38	9.5
	120	660	59.1	1.07	2.2	3552	5480	.46	9.4
	140	550	61.6	1.01	2.1	2553	6330	.47	9.0
	160	430	[illegible]	1.12	2.0	1990	5635	.48	9.4
	200	280	64.1	.99	1.9	......	6250	.51	8.4
391–393	40	850	48.8	1.19	2.0	1386	5275	.41	7.1
	80	765	48.8	1.27	2.0	2164	6820	.45	9.0
	120	415	47.6	1.27	1.6	2542	8330	.50	8.8
	140	335	47.6	1.22	1.4	1688	7810	.49	7.9
	160	235	46.9	1.26	1.4	1395	8300	.53	6.6
	200	225	52.4	.93	1.2	1080	5885	.51	5.4
2435-1	40	865	51.2	.70	3.0	980	3820	.36	8.3
	80	860	52.8	.88	2.8	1463	4410	.36	9.8
	120	845	54.7	.91	2.6	1388	5320	.42	8.5
	160	815	55.5	.91	2.0	1917	4770	.44	6.8
	180	440	53.5	1.07	1.5	1374	7230	.52	8.5
	200		57.9	1.03	2.0	1534	5550	.45	7.9
2435-2, 2435-3	40	865	51.2	.74	2.9	275	3389	.34	9.3
	80	815	51.2	1.37	1.9	871	5760	.45	7.8
	120	795	52.8	1.06	1.9	1105	6220	.44	8.5
	140	745	51.6	1.12	1.8	1508	6400	.46	8.0
	160	415	53.3	1.11	1.7	1877	6220	.47	7.3
	180	400	53.5	1.08	1.7	1316	5550	.44	7.5
394–396	40	865	53.9	.69	3.0	290	3345	.35	10.3
	80	855	52.8	.86	2.8	699	3730	.38	9.1
	120	855	54.7	.88	2.5	919	4175	.39	7.4
	140	800	56.3	.99	2.3	1175	4600	.42	10.4
	160	620	55.1	1.03	1.9	1373	5460	.46	10.5
	200	215	55.9	1.05	1.6	1504	6120	.50	8.3
2439	40	865	48.4	.79	3.0	365	2930	.33	6.7
	80	845	54.4	.84	2.8	687	4070	.36	6.8
	120	830	54.4	.89	2.5	1090	4360	.39	7.2
	160	740	56.5	.90	2.1	1303	5450	.41	7.6
	180	330	51.2	.97	1.6	838	5620	.47	6.1
	200		55.9	.89	2.0	2026	5090	.44	9.3
397–399	40	855	51.6	.73	3.3	1057	3190	.36	8.8
	80	845	52.4	.84	2.9	1401	4140	.39	7.8
	120	720	53.9	1.13	2.5	2201	6250	.45	9.8
	160	442	53.5	1.06	2.0	1302	6360	.50	8.8
	200	240	52.8	1.06	1.7	1854	6470	.53	7.3
2441	40	855	54.3	.54	3.5	90	2030	.30	7.0
	80	855	53.5	.65	3.6	316	2800	.35	6.0
	120	840	55.9	.82	3.0	1285	3780	.38	7.1
	200	590	54.7	.97	2.4	1058	4460	.42	7.9
	240	335	59.4	1.02	2.1	1704	6400	.49	8.8
	280	210	59.8	.99	1.7	1099	5420	.53	8.9
400–402	40	855	52.0	.92	2.4	1313	4392	.40	8.7
	80	820	52.8	.97	2.3	713	4973	.42	9.5
	120	805	54.7	1.01	2.4	1423	5634	.45	9.5
	160	615	55.5	1.14	1.6	1033	6728	.49	7.1
	200	265	56.7	1.06	1.9	1317	7665	.54	8.0
2442	40	845	59.8	.72	3.1	383	2777	.32	8.1
	80	835	61.8	.81	2.9	784	3598	.34	6.7
	160	820	60.2	.87	3.1	1747	3604	.36	7.3
	240	805	59.1	.93	2.6	1821	4379	.36	8.4
	280	775	61.8	.99	2.1	1423	4901	.42	7.8
	320	670	63.2	.96	1.9	1821	5922	.48	6.7

Bleaching data[2] and Chemical analysis[2]:

Digestion designation	Standard bleach powder added	Ives reading: Red	Ives reading: Green	Ives reading: Blue	Cellulose: Total	Cellulose: Alpha	Lignin	Total pentosans	Viscosity
No.	Percent	Parts	Parts	Parts	Percent	Percent	Percent	Percent	Centipoises
381–383	0	39	30	25	91.8	76.4	5.5	7.9	96.7
	25	70	60	49	......	......	......	......	......
391–393	0	38	27	23	89.5	73.8	7.0	8.6	......
	25	62	49	37	......	......	......	......	......
2435-1	0	38	28	24	91.6	75.6	5.5	8.3	81.7
	25	68	56	45	......	......	......	......	......
2435-2, 2435-3	0	40	29	24	91.2	74.9	5.5	8.9	99.6
	25	65	53	43	......	......	......	......	......
394–396	0	39	28	22	95.7	80.9	1.6	5.2	28.2
	25	70	56	44	......	......	......	......	......
2439	0	40	30	24	93.6	77.8	2.4	7.9	85.3
	25	75	67	60	......	......	......	......	......
397–399	0	38	27	21	90.6	74.0	5.1	5.8	......
	25	74	63	52	......	......	......	......	......
2441	0	41	31	26	93.2	76.7	3.8	7.0	......
	25	75	68	60	......	......	......	......	......
400–402	0	40	29	24	92.2	75.2	5.0	10.4	......
	25	70	60	50	......	......	......	......	......
2442	0	42	32	27	92.1	75.4	5.3	9.4	......
	25	75	65	54	......	......	......	......	......

[1] Cooking conditions: All digestions were made under the same conditions as follows--

Concentration of cooking chemicals- Sodium hydroxide (Calculated as NaOH) .... 33.3 grams per liter
Sodium sulphide (Calculated as Na_2S) .... 16.7 grams per liter
Total chemicals .... 50.0 grams per liter

Chemicals added per hundred pounds of oven-dry wood- Sodium hydroxide (Calculated as NaOH) ..... 13.33 pounds
Sodium sulphide (Calculated as Na_2S) ..... 6.67 pounds
Total chemicals .... 20.00 pounds
Total active (effective) alkali (Calculated as NaOH) ..... 16.75 pounds

Volume of liquor (including moisture in chips) charged per 100 pounds of oven-dry wood.. 48.0 gallons
Liquor-wood ratio 4:1
Maximum digestion temperature .... 170° C.
Temperature-pressure increase period .... 1-1/2 hours
Duration at maximum temperature .... 1-1/2 hours

[2] Data obtained on unbeaten pulps.

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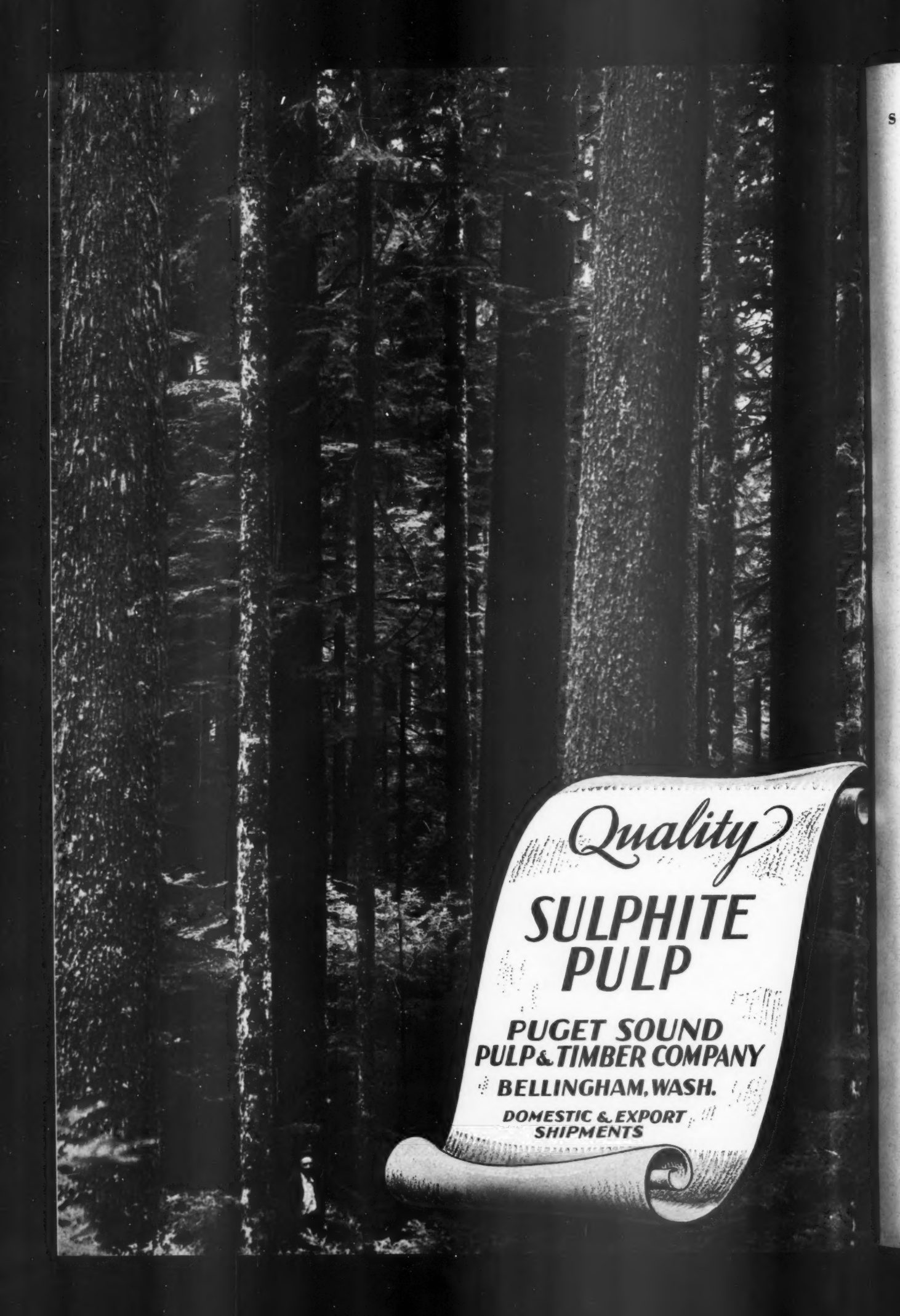
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Table 6.—Pulping data and properties of silver fir (Abies amabilis) sulphate pulps. Comparison of bleachable pulps from different parts of the tree.

Digestion	Location of wood in tree	Wood: Moisture	Wood charged, weight: Moist	Wood charged, weight: Oven-dry	Cooking[1] chemicals charged, concentration: NaOH	Concentration: Na_2S	Concentration: Total	Per 100 pounds O.D. wood: NaOH	Per 100 pounds O.D. wood: Na_2S	Per 100 pounds O.D. wood: Total	Total active alkali as NaOH	Volume	Ratio of combined to total alkali	Consumed: On oven-dry wood	Consumed: Total active alkali as NaOH	Density of black liquor at 15° C.	Yield: Oven-dry screened pulp	Yield: Oven-dry screenings	Yield: Total
No.		Percent	Pounds	Pounds	Grams per liter	Grams per liter	Grams per liter	Pounds	Pounds	Pounds	Pounds	Gallons	Percent	Percent	Percent	°Be.	Percent	Percent	Percent
364	Mixture of entire tree	21.8	5.12	4.00	45.0	15.0	60.0	25.65	8.55	34.2	30.0	68.4	64.3	22.0	19.3	11.0	43.5	0.0	43.5
365													64.7	22.1	19.4	11.0	43.7	.0	43.7
366													64.7	22.1	19.4	11.0	42.9	.0	42.9
Average													64.6	22.1	19.4	11.0	43.4	.0	43.4
358	Mixture of entire tree	19.9	[illegible].99	4.00	52.5	17.5	70.0	22.5	7.50	30.0	26.35	51.4	71.4	21.4	18.8	12.6	42.9	.1	43.0
359													71.4	21.4	18.8	12.6	43.4	.1	43.5
360													72.4	21.7	19.0	12.6	43.9	.0	43.9
Average													71.7	21.5	18.9	12.6	43.4	.1	43.5
352	Mixture of entire tree	22.3	5.15	4.00	52.5	17.5	70.0	25.65	8.55	34.2	30.0	58.6	64.5	22.1	19.4	12.4	43.1	.0	43.1
353													64.9	22.2	19.5	12.4	42.2	.1	42.3
354													64.3	22.0	19.3	12.4	41.9	.0	41.9
Average													64.6	22.1	19.4	12.4	42.4	.0	42.4
2436-2	Top logs (basket)	17.3	4.53	3.75	52.5	17.5	70.0	25.65	8.55	34.2	30.0	58.6	55.6	19.0	16.7	10.8	46.9	.0	46.9
-3																	46.0	.0	46.0
Average																	46.5	.0	46.5
2438	Butt logs	13.9	116.20	100.00	52.5	17.5	70.0	25.65	8.55	34.2	30.0	58.6	47.1	16.8	14.7	10.6	43.0	.0	43.0
2440	Slabs (sapwood)	16.3	119.50	100.00	52.5	17.5	70.0	25.65	8.55	34.2	30.0	58.6	51.1	17.5	15.3	10.4	44.7	.0	44.7
2443	Log centers (heartwood)	16.5	119.70	100.00	52.5	17.5	70.0	25.65	8.55	34.2	30.0	58.6	51.3	17.5	15.4	10.7	43.1	.0	43.1

Digestion	Pebble mill strength data (unbleached pulps), tests made at 72° F. and 65 percent relative humidity: Time in pebble mill	Freeness (Schopper)	Ream weight (25x40-500)	Burst factor	Tear factor	Folding endurance	Tensile strength	Solid fraction	Stretch	Bleaching data[2]: Standard bleach powder	Ives readings: Red	Green	Blue	Chemical analyses[2]: Cellulose: Total	Cellulose: Alpha	Lignin	Total pentosans	Viscosity
No.	Min.	Cc.	Pounds	Points	Points	Double folds	Lbs./sq.in.	Ratio	Percent	Percent	Parts	Parts	Parts	Percent	Percent	Percent	Percent	Centipoises
364–366	40	860	58.3	0.61	2.9	1023	2972	0.36	5.3	0	47	35	31	95.4	78.5	0.8	5.7	15.5
	80	840	59.4	.63	2.5	1112	3078	.38	5.6	20	81	78	73					
	100	835	61.8	.62	2.8	752	3360	.38	5.3	22.5	84	80	75					
	120	832	61.4	.70	2.3	1106	4260	.42	6.4	25	84	81	77					
	140	813	59.6	.75	2.3	1092	4250	.43	6.5	30	86	83	80					
	160	800	59.8	.73	2.2	1142	4250	.42	6.8									
	200	660	61.0	.74	1.8	866	4775	.47	6.9									
358–360	40	850	49.1	.66	3.5	568	2700	.35	5.0	0	45	34	30	94.3	78.4	.9	6.1	19.7
	80	840	49.4	.77	3.3	837	3420	.39	5.9	20	82	77	70					
	100	830	57.5	.74	2.4	948	3765	.41	6.0	22.5	82	79	75					
	120	820	59.5	.73	2.4	1171	3930	.41	6.3	25	84	82	79					
	160	740	58.3	.76	2.1	864	4270	.45	6.5	30	86	84	82					
	200	730	61.8	.72	2.1	834	4390	.48	6.6									
352–354	40	850	52.4	.64	2.3	509	3225	.35	5.7	0	43	34	29	96.2	80.4	.9	5.6	13.5
	80	820	52.0	.72	2.3	434	3805	.40	7.1	20	81	80	77					
	100	698	52.6	.83	1.8	801	4507	.45	7.0	22.5	83	81	78					
	120	482	49.8	.86	1.6	597	5040	.48	7.4	25	85	83	80					
	160	265	51.6	.75	1.3	387	5120	.53	6.0	30	84	84	82					
2436-2, -3	40	855	53.9	.71	3.5	188	3480	.37	7.5	0	46	36	31	95.3	79.6	.7	6.0	26.9
	80	835	56.7	.82	2.6	689	3860	.41	8.5	20	82	78	75					
	120	830	53.5	.77	2.6	412	3710	.40	9.0	22.5	84	79	76					
	140	815	53.2	.84	2.3	897	4600	.42	9.3	25	85	80	78					
	180	370	57.1	.91	1.8	864	5510	.53	8.0	30	85	82	80					
	200	155	52.0	.87	1.2	810	5870	.54	6.0									
2438	40	855	52.0	.60	2.8	121	2780	.36	7.8	0	50	41	36	96.6	80.2	.7	4.8	23.3
	80	780	50.4	.89	2.1	887	4910	.44	7.4	20	83	81	77					
	120	535	50.4	.95	1.8	866	5950	.51	6.7	22.5	84	81	79					
	160	260	52.0	.90	1.5	571	6100	.54	9.4	25	84	82	81					
	180	205	55.5	.76	1.3	682	4960	.56	5.1									
2440	40	850	54.7	.55	3.1	91	2595	.36	5.8	0	49	41	35	97.4	80.2	.7	4.6	20.1
	80	825	54.3	.72	2.3	611	4030	.39	7.1	20	83	82	78					
	120	810	55.1	.77	2.4	516	3850	.38	6.9	22.5	84	82	79					
	160	470	56.7	.86	1.8	588	3820	.42	7.1	25	86	83	81					
	180	375	58.3	.79	1.8	600	4410	.47	8.4	30	86	85	83					
2443	40	835	56.3	.65	2.7	947	3072	.35	6.5	0	49	40	34	96.1	79.6	1.1	5.4	16.6
	80	825	57.1	.77	2.4	1072	3693	.37	7.8	20	82	80	74					
	120	800	56.3	.80	2.2	1200	5024	.46	7.3	22.5	82	80	75					
	160	798	58.7	.82	2.3	1140	4368	.42	8.7	25	83	81	78					
	200	460	57.5	.86	2.0	743	4890	.48	7.8	30	85	82	80					
	240	510	60.2	.84	1.6	312	4958	.48	6.5									

1 Cooking conditions: Temperature-pressure increase period .... 1-1/2 hours
Duration at maximum temperature .... 2-1/2 hours
Maximum digester temperature .... 170° C.

2 Data obtained on unbeaten pulps

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Shipment 1430

Trade Talk

of Those Who Sell Paper in the Western States

Paper Mills Warn Distributors on Prices

● Right after Labor Day a large number of paper manufacturers throughout the country notified their distributors that prices on future shipments would not be guaranteed but would be those prevailing on the date of shipment.

This action came on the heels of the starting of war in Europe and was based upon the realization that the present low prices of wood pulp will not be continued for very long as shipments from the Scandinavian countries would be either curtailed or shut off entirely. Even if shipments should continue in volume the price would rise due to higher freight rates.

Pacific Coast paper jobbers were busy after the Labor Day holiday with inquiries from customers asking for guarantees on prices and deliveries for 1940 requirements. This was a belated effort to offset the rise in the too low paper prices which consumers know will come about shortly. Naturally the jobbers cannot make such promises with their sources of supply informing them that prices on the date of shipment will prevail.

The uncertainty of war has entered into the selling of pulp and paper, becoming the important factor overnight and supplanting price which has ruled the markets since the latter part of 1937.

Long Joins BM&T Sales Staff

Coming to San Francisco with a wide knowledge of printing papers, Mr. L. F. Long joins the sales staff of Blake, Moffitt & Towne. Working under the direction of Mr. J. A. Gruner, sales manager of the printing paper department, Mr. Long will call on many of the large San Francisco printing plants.

Born in Omaha, Neb., and moving to Texas when very young, Long received his first taste of paper and ink when his father took over a small Texas newspaper. He spent all of his spare time in the newspaper business while attending school and when the World War broke out he joined the Marine Corps. After the war he finished his schooling and then went to work for the Southwestern Paper Company of Houston. From there he moved to the Paper Supply Company, a branch of the San Antonio Paper Company. With a couple of years of this paper jobbing background, Long went to Omaha, Neb., in 1920 to join Field - Hamilton - Smith, paper merchants, where he remained until his joining Blake, Moffitt & Towne in August of this year.

Mr. Long brought his golf clubs to San Francisco and, judging from quoted scores, he can give the local boys considerable competition.

Zellerbach Let Contracts For Portland Warehouse

● On September 1st the Zellerbach Paper Company awarded construction contracts for a new warehouse in Portland, Oregon. The building contracts include the complete modernization of an existing seven-story and basement building and the construction of a modern warehousing plant on the adjoining lot.

When completed the building will have a frontage of 200 feet on Northwest Fifth Avenue and will have 100 feet frontage on Everett Street, running through to Fourth Avenue. The complete job will cost around $200,000 according to the announcement.

At the time of awarding the contracts W. D. McWaters, Portland manager of the Zellerbach Paper Company, commented as follows:

"This division of our company has outgrown its present quarters. In order better to serve our customers from a location where traffic problems are at a minimum, our executives have authorized the construction of a modern merchandising warehouse. In this development we are planning for the future, and have provided sufficient additional space so that our business can grow with the general growth of Portland."

Cardoza Company Enters Printing Paper Business

● Frank B. Yerby, for the past 20 years in the sales department of Blake, Moffitt & Towne, resigned last month to organize a paper jobbing department for the T. J. Cardoza Co. of San Francisco.

The Cardoza company is said to be the largest book binders and paper rulers on the Coast.

Under Yerby's direction the company has put in a stock of high quality printing papers, which have been obtained from well known mills.

Commercial Paper Adds New Lines

According to an announcement made recently, the Commercial Paper Co., San Francisco, is adding to its line of announcement papers, Cassandra and Old Cairo, both manufactured by the American Writing Paper Co.

Griffith Named Manager of BM&T at Phoenix

● Fred H. Griffith, formerly assistant manager, Phoenix division, Zellerbach Paper Company, has been appointed manager, taking the place of David Crikelair, former manager, who will be assigned to other duties with the company.

Paper Mill Men's Club Has Summer Party

● Despite summer vacations a full complement of paper men met for the midsummer get-together of the Paper Mill Men's Club of Southern California. Golf, dinner and a program of entertainment filled the bill, and the party was declared a rousing success. Chet Gunther and Bill Charbonneau as chairman and vice-chairman headed the committee that put the event on.

Marvin Vanderheiden walked away with the first golf prize with a 79. Close on his heels for runner-up was J. W. Genuit. Forty-five were at the dinner, which was served in the dining room of the California Country Club at Culver City. Following dinner the club was highly entertained by a young man of a very few years and a very long memory. As well as the memory genius, a card trick specialist and a violinist were on the program.

In the absence of the president, Al C. Hentschel, C. Fran Jenkins presided. Announcement of committees for the Fifth Annual Invitational Golf Tournament and Hi-Jinks was made. General chairman this year is Paul R. Raab. Vice-chairman is W. A. McBride. Committees and their chairmen are: Finance, H. L. Fields, chairman; Newby Green, G. N. Madigan; entertainment, Horace Gibson, chairman, Chas. Spies; golf, Frank R. Philbrook, chairman, Frank Gladden; door prizes, C. W. Fisher, chairman, G. S. Brenzel; Christmas dinner fund tickets, J. D. Tudor, chairman, B. Bohnson, Irvine E. Damon and J. A. Theim; program, Art Fox, chairman, Arthur E. Kern, Louis Wanka; sports, Roy Gute, chairman.

The big event will be held this year at the Riviera Country Club, scene of former similar parties, Friday, Oct. 6, with golf starting at noon and the banquet at 7 p. m. Softball, horseshoes, tennis, will also be available for any desiring to play. Three hundred guests are anticipated at the annual meeting.

Coast Visitors

● W. J. Blackley, Beveridge Paper Co., Indianapolis, Ind., was a recent Pacific Coast visitor.

Visiting here on the Coast this month was L. R. Cramblet, A. M. Collins Manufacturing Co., Chicago.

Walter Short Dies at San Francisco

● Walter Short, for many years a San Francisco salesman of the Zellerbach Paper Co., died July 17 after a brief illness.

Winthrop L. Carter Visits Pacific Coast

● Winthrop L. Carter, president, Nashua Gummed & Coated Paper Co., Nashua, N. H., accompanied by Mrs. Carter, was a recent visitor to the Pacific Coast.

While here he attended the encampment of the Bohemian Club at beautiful Bohemian Grove on the Russian River near San Francisco.

Later, as the guest of J. F. Nields, Pacific Coast manager of the company, the Carters were taken on a tour of the Sierra, taking in Lake Tahoe, Mono Lake, and Yosemite Valley.

Carter is an ardent photographer and took many pictures of the San Francisco International Exposition, about which he was most enthusiastic.

While on the Coast he visited the San Francisco offices of Carter-Rice & Co., and also the Seattle office of that firm.

The Carters returned home via the Northwest and Jasper National Park.

Aside from his many business activities Carter is particularly well known in the East as the originator and first president of the New England Council.

Canadian Newsprint Industry Promises Stable Production

● Canadian newsprint manufacturers have agreed among themselves to avoid any attempt at profiteering in war-time and they have pledged themselves to a program of orderly marketing, thus assuring maintenance of supply at reasonable prices, according to a statement issued by Charles Vining, president of the Newsprint Association of Canada.

Mr. Vining's statement follows:

"Having in mind the extreme conditions of newsprint supply and demand which developed during the last World war, Canadian newsprint manufacturers have asked that this statement be issued to express their attitude in the situation which now exists.

"Canadian newsprint manufacturers today realize their duty and responsibility in supplying a commodity of vital wartime importance in the dissemination of news and public information and they wish to give assurance that this realization will guide their conduct. They pledge themselves to assist, by any means within their power, the war effort of the nation.

"The Canadian newsprint manufacturers will meet the wishes of their Government by avoiding any attempt to profiteer and will make every possible effort to maintain stabilized conditions of continuous supply and to discourage methods of buying and selling which might cause a disorderly market.

"With these purposes in mind, the Canadian manufacturers strongly urge their customers to take their shipments as far as possible in equal monthly quantities, avoiding unnecessary accumulation of stocks and spot purchases which inevitably would tend to bid prices up and cause disorder.

"If normal contract methods of buying are followed, the Canadian mills believe they are in position to assure continuous adequate supply to all customers depending upon them. Steps have been taken to guard against sabotage of Canadian plants and equipment and there is no reason to fear that Canadian production facilities cannot be fully maintained."

Changes in Management of Bonestell & Co.

● Changes in management in the oldest paper house on the Pacific Coast and one of the oldest mercantile establishments—Bonestell & Co., San Francisco, have brought the third generation of the Bonestell family to positions of prominence in the company's affairs.

Effective September 1, H. S. Bonestell Jr. was appointed vice-president of the company. He will have general charge of the company's operations under his father H. S. Bonestell Sr., directing his attention especially to sales.

Bonestell Jr. will handle the duties of Charles Pritchard, who resigned September 1 after 14 years with the company. As PACIFIC PULP & PAPER INDUSTRY went to press, Mr. Pritchard had not yet announced his plans for the future, but it was thought probable that he would continue in the paper industry.

Mr. Bonestell Jr. started with the company about 14 years ago, then left to spend four years in the Orient with a mining company. When he returned to the United States he worked in Oakland as a salesman for the paper company, then was promoted to Oakland sales manager.

January 1, 1939, when the company resumed sales of coarse paper he was put in charge of the sales of that commodity. He is married, and has one daughter. His hobbies are fishing, hunting, and stamp collecting.

J. H. Bonestell, brother of H. S. Jr., has been appointed secretary of the company, and has taken over the financial end of the business under his father. This step was due to the death of Spencer Kendall, who had been with the company for 30 years, until he committed suicide August 24. Kendall was cashier of the company at the time of his death, which was unaccounted for, since his books were in perfect order, and he had no other difficulties that were known.

J. H. Bonestell has been with the company for the past nine years, where he has been engaged in a number of activities.

H. S. Bonestell Sr., accompanied by Mrs. Bonestell, left the early part of this month for a cruise to the South Seas that will keep him away from his desk for more than three months.

On the left, H. S. BONESTELL, Jr., Vice-President, and on the right his brother, J. H. BONESTELL, Secretary of BONESTELL & COMPANY, paper merchants of San Francisco.

Barclay Comments On Wars Effect on Newsprint

● To many present-day executives in the Pacific Northwest pulp and paper industries, wartime market conditions represent a new experience, but to William Barclay, manager of Powell River Sales, distributing subsidiary of the big British Columbia newsprint organization, they are an old story, well remembered.

"It may be too early to hazard even an opinion," said Mr. Barclay, "but the situation seems to be developing just as it did in the Great War. I remember that at the outset of the trouble in 1914 there was a period of uncertainty; orders were cancelled and business was down everywhere. In about six months' time, after funds used in purchase of war supplies began to gain circulation, trade began to pick up. Later on, as most people recall, there was a newsprint boom and prices went to an all-time high, although the record price came after the war rather than during it."

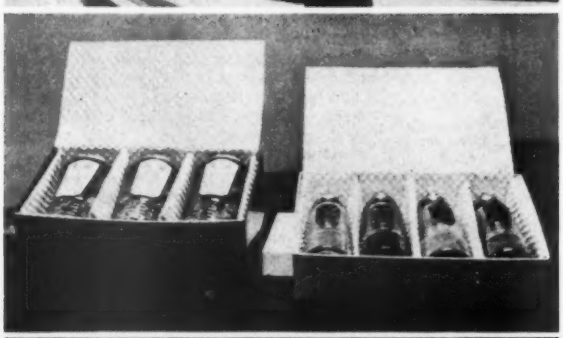
Mr. Barclay believes that the market trend for newsprint will depend a good deal on the state of general business in the United States. He hopes for a solid, stabilized market without wide fluctuations and sky-high prices. He refers to the statement issued soon after the out break of this war by Charles Vining, president of the Canadian Newsprint Association, pledging the industry to maintain present prices until conditions made change necessary, to guard against profiteering and otherwise taking advantage of war conditions and to co-operate fully with the government. Mr. Barclay and other B. C. newsprint executives regard this attitude as a fair and logical one.

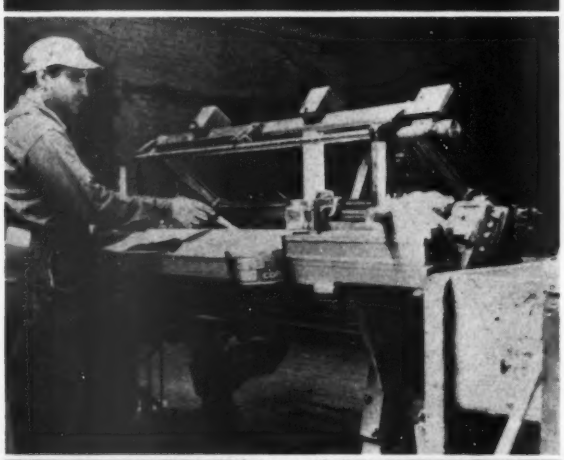
Incidentally, the Dominion government has already passed legislation forbidding excessive war-time profits, and this will naturally apply to newsprint as well as to every other industrial activity. Profits will be regulated by stiff taxation on profits of over 10 per cent.

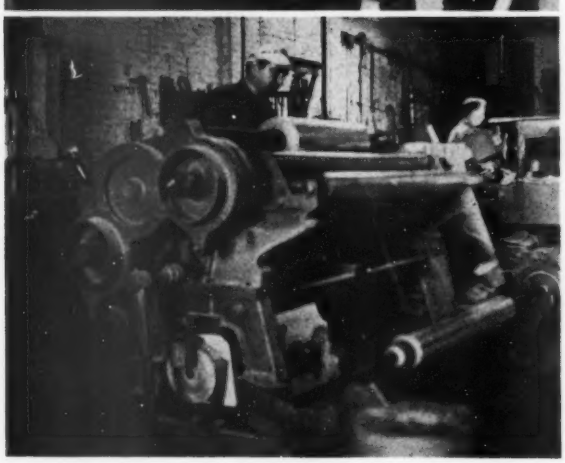
Edward N. Smith Opens Converting Plant

● The Coast Sales & Converting Company was launched in Los Angeles during August. President of the new company is Edward N. Smith, founder of the firm. The company is incorporated and will convert shelf and drawer lining paper. The new line of paper will be merchandized under the name Shelfline Arrow Brand, a copyrighted name. Offices and factory are located at 1304-1308 Newton street.

Mr. Smith is well known in the paper trade having been an active mill representative in the southern area for a number of years. He is one of the founders of the Paper Mill Men's Club of Southern California. Secretary-treasurer of the organization is E. M. Brooks. Mr. Brooks sold his partnership in the Hollywood Paper Co. to take an interest in the new firm. Mr. Smith has developed new rewinding equipment for use in his converting plant.







Angelus Paper Products Has Grown Steadily

Angelus Paper & Excelsior Products Company of Los Angeles produces over 150 products from paper and board, ranging from paper excelsior to special rolls for fortune telling machines

WHEN F. C. Van Amberg started the Angelus Paper & Excelsior Products Company in 1926 in Los Angeles, paper excelsior was still in its pioneering days. Mr. Van Amberg gave away 1,800 bales of the product to acquaint people with it and show its many uses. How well he accomplished this early educational program is evidenced by the continuous growth of the company including its recent expansion this summer which has added another 25 per cent to its production capacity.

The manufacture of the excelsior alone is only one of the many activities of the firm. More than 150 items are made at the plant with many variants of each. As well as paper excelsior and the many varieties of packing pads made from this, the company makes adding machine paper, cash register paper, tabulator and teletype paper, addressing and listing papers, ticker tape, serpentine, roll paper specialties, furniture pads, embossed chip board, pipe and tire wraps, and recently has entered the realm of the occult in making special paper rolls for fortune telling machines.

A service rendered jobbers by the company comprises slitting, sheeting, rewinding, cutting and reconditioning of rolls. An example of this service was the call from a jobber recently who had received a roll of paper 42 inches in width which should have been 41 inches.

●

In the top photograph F. C. VAN AMBERG, President and General Manager of the Angelus Paper & Excelsior Products Co., of Los Angeles ' ' ' In the second picture one use of the company's embossed chipboard, Nomar Embostex, is demonstrated ' ' '

The next picture shows the new Cameron 50-inch slitter for manufacturing small rolls ' ' ' The bottom picture shows the Cameron cellophane and vulcanized rubber slitter handling 50-inch rolls ' ' ' Below china plates separated by sheets of Embostex are wrapped with a paper excelsior filled pad prior to packing in fibre container lined with Embostex ' ' ' The combination provides effective protection against breakage without excess bulk or weight.

The roll was sent to the Angelus Paper & Excelsior Products Company and in a few hours was cut down to the correct size and returned to the customer.

New equipment added in the recent expansion is a 45-inch special built sheeter for fancy papers, a 72-inch specially built slitter for all kinds of stock, and a special small roll slitter, manufactured by Cameron Machine Co., for all round service. This equipment and the additional space provided by the new construction for warehousing during peak loads at the plant has given it its 25 per cent increased production capacity. Additional employees have been put on the payroll as well and the personnel now numbers 20.

In the packing pads they manufacture 62 standard sizes. Part of the company's battle to educate stores and packing departments of various companies to get away from loose packing materials has been aided in recent time by the embossed chip board they make which is marketed as Nomar Embostex. The company has its own machine for making Embostex which feeds, rewinds, slits, sheets as well as embossing.

Mr. Van Amberg is sole owner of the firm, and has been one of the pioneer promoters in the use of paper materials in packaging in the Southwest. The machine which makes the furniture pads, a development in his plant, will manufacture 125 feet of furniture padding per minute in widths up to 10 inch. As well as this excelsior making machine or shredder the plant also has a tissue shredder.

The Angelus Paper & Excelsior Products Company is a unique converting plant being the only one of its type in the Southwest. Its services are varied and it fills an important place in the paper industry of the area.

Zellerbach "Informant" Cover Makes Your Mouth Water

● "One of the snappiest ever issued," was the verdict of the trade when they saw the September issue of the Zellerbach Paper Company's "Informant." The well known house organ bears on its cover a realistic picture of a luscious bunch of wine grapes in natural color, and the contents are more than usually interesting. The "Informant" is the work of Victor E. Hecht, vice-president of the company, and Mrs. Glory M. Palm, his assistant.

Gimlin of Gilbert Paper Dies in San Francisco

● The many friends of Horace M. Gimlin, 65, who had represented the Gilbert Paper Co., Menasha, Wisconsin, on the Pacific Coast for many years, were shocked to hear of his death August 17 at San Francisco.

Mr. Gimlin was a veteran of the paper industry, having been connected many years ago with one of the large San Francisco jobbing houses.

O'Keefes Escape In Train Wreck

● In the tragic wreck of the "City of San Francisco" which occurred Aug. 5 near Danby, Nev., Tom O'Keefe of the Sierra Paper Co. of Los Angeles, Mrs. O'Keefe and their four-year-old son Tommie, were among those fortunates who escaped with their lives. Mr. O'Keefe suffered a leg injury, but other than this no other damage occurred to him or the rest of his family. Mr. O'Keefe reported that the wreck was far worse than people realized.

Hecht Attending Eastern Meetings

● V. E. Hecht, vice-president, Zellerbach Paper Co., San Francisco, left September 8 to attend the National Paper Trade Convention, and also the Hammermill and Warrenton paper company sales meetings.

Edward Smith Moves Offices

● The Edward N. Smith Paper Company has moved its offices from 820 McGary street, Los Angeles, to 2866 W. Seventh street, according to Edward N. Smith, head of the company.

McDonald Awarded 20-Year Pin

● R. A. McDonald, executive vice-president in charge of mill sales, Crown-Zellerbach Corp., San Francisco, was recently presented with a 20-year pin in the presence of other executives in the San Francisco office.

Colton East During August

● Louis Colton, vice-president, Zellerbach Paper Co., San Francisco, spent most of August in the East visiting various paper mills and paper manufacturers.

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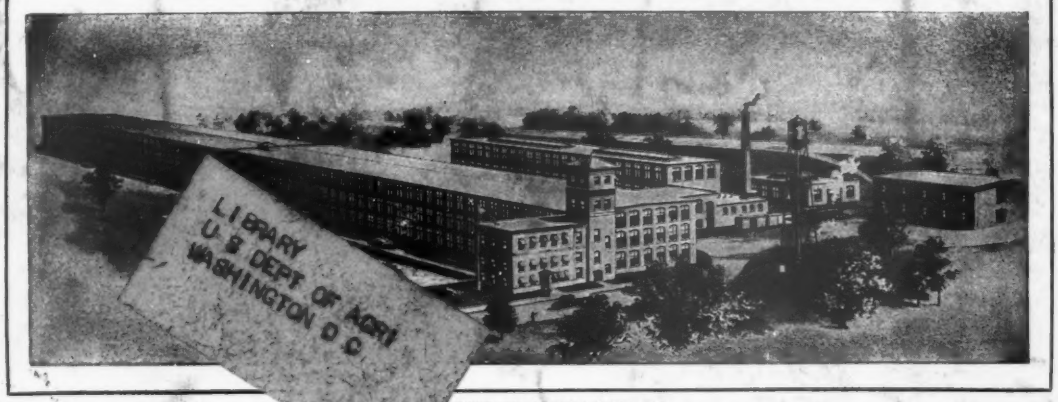

HOME OF ALBANY FELTS

Felts For:

Leather Board
Straw Board
Box Board
Bristol Board
Tissue
Bond
Writings
Insulation Board
Mulch Paper
Straw Paper
Wrappings
Glassine
Newsprint
Cellucotton
Wall Board
Soda Pulp
Sulphite Pulp
Building Papers
Asbestos Papers
Cement Shingles
Blotting
Book
Chip Board
News Board
Cover
Kraft
Ledger
Manila
Rope
Ground Wood Pulp
Binders Board
Toweling
Condenser Paper
Bottle Cap Board
Catalogue
Envelope
Container Board
Hanging
Coating Boards
Coating Papers
Tag Board

SPECIALIZATION

Ours is a specialized business—that of making *good* paper machine felts. It is different from any other textile business in the world.

Our designers, spinners, weavers, research chemists, finishers, are all specialists with years of sound experience in felt making. Some of them have followed their particular line of work for 25 years.

Machinery, too, is *special*. Much of it is of our own design.

Our resources and world-wide experience have led the paper industry to bring all manner of problems to us involving the use of felts.

If you have an unusual machine condition which is bothering you, let us know about it. Perhaps we can help you.

ALBANY FELT COMPANY

ALBANY, NEW YORK